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October
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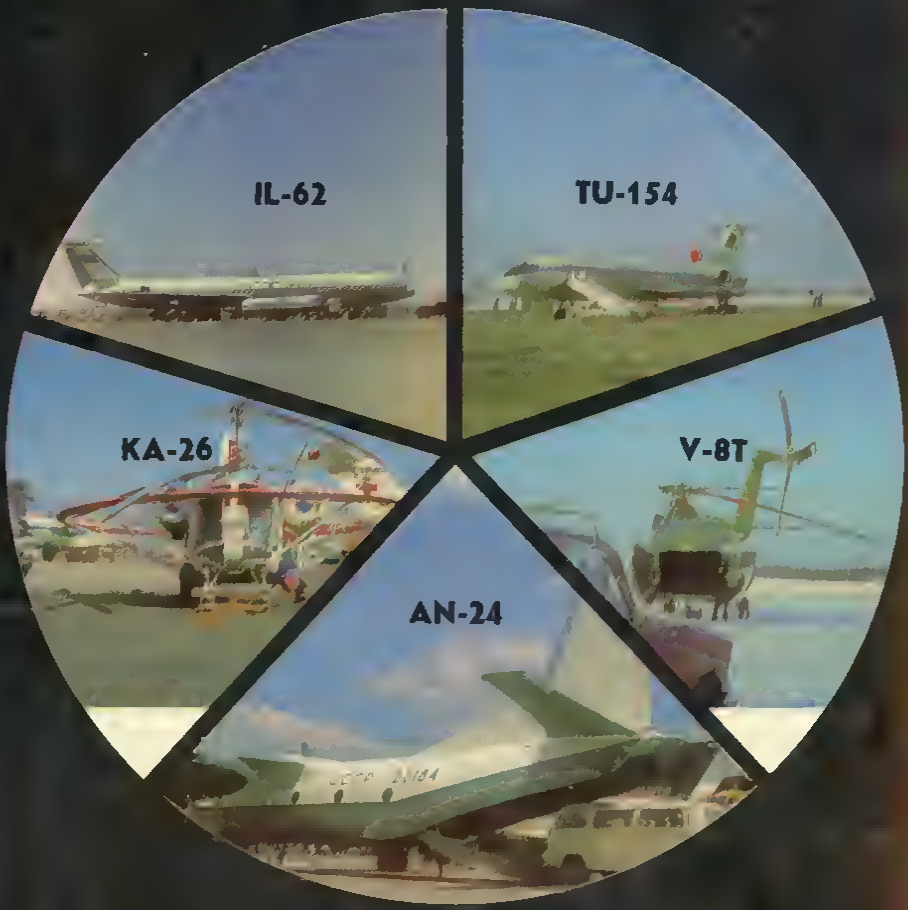

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CONTENTS

Letters to the Editor

I enjoy all your articles, especially on medicine, art and culture, photos of various places in the USSR. But I never see anything on the most human of all arts and professions — the nursing profession. I myself am a trained psychiatric nurse and have been nursing for seven years.

I and my colleagues would be more interested in the sociological and therapeutic side with special reference to the problems facing the profession in the USSR.

Valerie J. Buck, Perth, Australia

In the April, 1969, issue one of your readers from England, Miss Elizabeth Douglas, suggested you publish words and music of Russian songs in future issues. I, too, look forward to them. It occurred to me that perhaps you could include a short explanation of the Russian musical terms.

Mary G. Lipscomb, Ramsey, N.J., USA

I would suggest an article about Bukovina where I was born, but left as a boy and do not know much of its history and folklore.

A. Moscal, Tasmania, Australia

It is the duty of a friend, kinsman, or neighbour to stand by the side of his counterpart in times of crisis. That is why I have chosen to write to a magazine with such wide publication on a subject about which I feel so strongly.

The very fact that this letter is appearing a few months after the incident occurred may remind those who read it that world public opinion is still running high against the atrocious Chinese aggression against the Soviet Union, just as strongly as ever. The conscience of humanity cannot forgive those who perpetrated the murder of innocent people. Before they decide on further intrusions into Russian territory they'd better look at what happened to others who moved against the forces of history. In the long run, what nation has ever succeeded in satisfying its expansionist appetite on Russia?

This is a time when the idea of collective security should be carefully considered. Perhaps eventually the world's progressive statesmen will recognize the urgency for the "collective salvation of the world". Those who recall the appeals once made by Maxim Litvinov, and the aftermath of that era, will certainly act realistically.

... Let us remain firm in our conviction that the ideas of peace and order will triumph.

Nicky Edd, Beaumont, Texas, USA

To be frank, I consider your magazine quite unusual for West Germany. I want to congratulate the German publisher, for it takes courage to distribute SPUTNIK in Germany. At last we have a magazine that will exercise a good influence on the German youth.

As you have probably noticed in the Soviet Union, the young people of West Germany are now different from what they were in 1933. We no longer think in clichés handed down to us, but have an independent point of view on everything, which can be judged by the student disturbances over the past year. And this is only a beginning. However, the wide masses of West Germany think differently from the youth.

At present our country is on the brink of great changes — everything is seething here. I'm not good at prophesying. But there's one thing I know for a fact — the young people of West Germany want to live

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Dieter Kilimann, Hunxe, BRD

Shortly after the publication of my home address in SPUTNIK, I was flooded with letters, about 10—15 a day. I was so happy! Altogether I have received about 170 letters and continue to get more. I have pen-pals all over — in the Soviet Union, Poland, Czechoslovakia, the German Democratic Republic, France, Finland, Norway, Italy, Britain, the United States, India, Pakistan, Brazil and some countries of Africa. My home has thus become a kind of international pen-pal club. All these letters have helped me to understand that there are kind and nice people everywhere. That's why I feel like crying out so that the whole world could hear: "Let all people be friends. This would be wonderful!"

Tania Dikova, Sofia, Bulgaria

I would like to thank all the wonderful people who have written to me. So far I have received more than 100 letters, and I am replying to as many as possible. However I have not been able to translate many of them into English and to these friends I must apologize for not being able to reply. Once again thank you.

Your comrade and friend from Australia, Daniel J. Sullivan

Pen-Friends Wanted

We would like to correspond in English, Russian, French, Chinese, German, Spanish, Arabic and Greek. It is wonderful to make friends with people from different parts of the world. We are students of physics and mathematics at Athens University.

Christ C. Kalimeras, 91A Philellinon str., Lapithos, Cyprus
Iraklis L. Kyriazov, 79 P. Poliemiston str., Barbara, Egales, Athens, Greece

I am eager to correspond with the readers of SPUTNIK.

Linda C. Creagh, 24 Larkfield Close, Hayes, Kent, England

My age is 15 and I am a Bulgarian girl. I want to correspond with girls and boys on all continents. I collect stamps, am fond of hiking and am very much interested in the past and the present of the Indian people. Can write in English, Russian, Bulgarian and a little in French.

Violeta Karastoyanova, Complex "Lenin", Block 2, Sofia 4, Bulgaria

I am an Iranian, aged 19, and wish to write to people from Sweden, Italy, France, Switzerland, U.S.A., U.K. and elsewhere in Europe and America. I am very interested in reading, writing, music, cinema; collecting stamps and post-cards.

Ahoighasem Moayyeri, P.O. Box 116, Kermanshah, Iran

I am a 15-year-old Danish girl and I want to correspond with boys and girls of my own age outside Denmark. I am interested in pop and beat music, animals, especially horses, dogs and birds, in nature, sports and in the way of life in other countries. I can write in English and German.

Dorrit Petersen, Storegade 65, 3790 Hasle, Bornholm, Denmark

I would like to have pen-friends all over the world. I am a Muslim youth of 21. My hobbies are collecting stamps, view-cards, photographs and reading foreign magazines. Can correspond in English, Burmese and Urdu.

Mohammed Ahul Mohsin Siddiqul, c/o A. Rahman, Champion Road, Umhla Qr., Akyab, Burma

I am eager to correspond with people in the English-speaking countries. I collect stamps, can write in English, Russian and German.

Mrs. Elke Sauer, 5232 Buttstadt, Postfach 29, GDR

I want pen-pals in all countries of the world and especially in the Philippines, Japan, England. I am 16 years old. All the letters will be answered.

Vânio Peruffo, Rua Ministro Alfredo Nasser No.23, Anápolis, Goias, Brazil

SPUTNIK

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We welcome your questions, comments and suggestions which will be reported in the Letters Section of **SPUTNIK.**

Sincerely,
The Editors

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Pushkin's Lost Diary Is It in Britain?

"Is it true that there is an unpublished diary of Pushkin's, as some literary scholars claim?"

"Have Pushkin's personal letters and other documents been returned to his homeland?"

"Is it true that Pushkin's descendants are related to the British royal family?"

These and similar questions have been sent in by our readers. Tatyana Ivanova, of SPUTNIK, has done research in this field and has the following to say:

Alexander Pushkin came from an ancient noble line on his father's side. A distant ancestor of his, an early Russian hero, Gavrilo Olexich, was one of Alexander Nevsky's comrades-in-arms in his victory over the Swedes in 1240. His mother's line did not claim to he ancient or aristocratic. His grandfather Ibrahim was horn in north Abyssinia, where his father owned two or three towns. As a child Ibrahim was carried off to Turkey as a slave and was subsequently sold to the Russian Czar, Peter the Great, along with other dark-skinned boys "as an adornment for the Palace". In Russia Ibrahim was christened, receiving the name Ahram Petrovich Hannibal. He served in the army and eventually rose to become General-in-Chief.

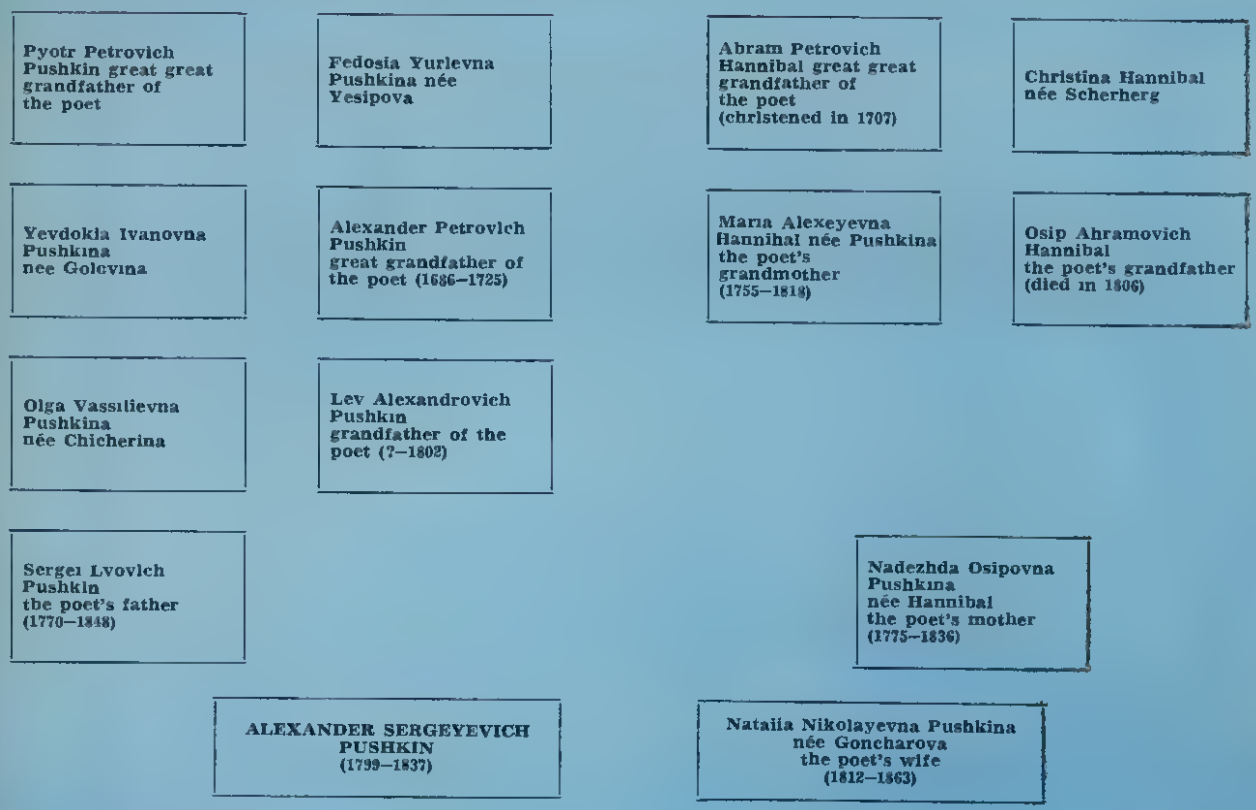
The Duel

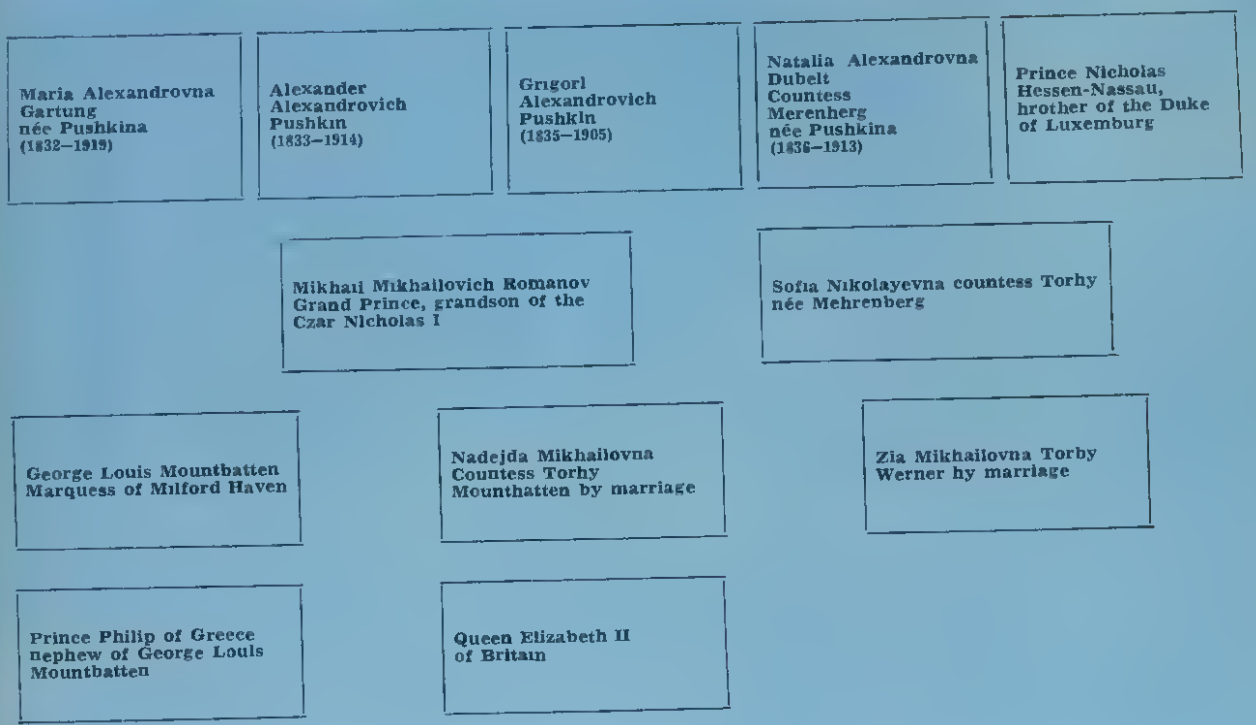
Alexander Sergeyevich Pushkin died on January 29, 1837, of a wound received in a duel with Georges d'Anthès. The cause of the duel was Pushkin's jealousy of d'Anthès who had paid demonstrative attentions to Pushkin's beautiful wife, Natalia, giving rise to widespread gossip. An anonymous, slanderous lampoon of Natalia brought on the affair of honour.

D'Anthès shot first and fatally wounded the poet. Dying in great pain, Pushkin nevertheless found the strength to defend his wife from the condemnation of society. Over and over again he told the friends who surrounded his deathbed that she was blameless. After his death, however, Natalia was not spared. Some said that Pushkin was the "victim of a light-minded coquette". Others said that "intentionally or not, she is the cause of his death". But perhaps all Natalia could really be reproached for was a certain careless flirtatiousness. It must be remembered that she was very beautiful and very young. She had many admirers, including the Czar himself, and was the object of undisguised envy on the part of other high-born beauties.

Whether she was to blame or not, the tragedy had a social aspect. A study of the enormous volume of letters, diaries, books and articles on Pushkin reveals clearly how disliked the poet was by Nicholas I and certain nobles

THE PUSHKIN FAMILY GENEALOGICAL TREE





* The Pushkin line (the genealogical records being from 1240) has many branches. Here we give parts of the Pushkin family tree, mentioning only those representatives with which this article is concerned.

of his court. On more than one occasion the Czar had attempted to inveigle the poet to his court, to persuade him to wield his pen in the interests of the throne. Pushkin remained a relentless opponent of the aristocracy and court circles intrigued to bring about his death. D'Anthès merely played the role assigned him.

The Question

Within 40 minutes of Pushkin's death the police were in his study, examining his papers. Manuscripts, letters, notebooks were seized and taken to the Third Department of the Imperial Chancellory. In time they were returned to the widow. But were all of them returned?

Among other papers Natalia received a large notebook bound in the form of a portfolio. It was a diary and was numbered "II". But there was no notebook "I". Either it had remained in the Third Department and in all likelihood been burnt or it had simply not been found during the search.

The Fate of Notebook No. II

For a long time this notebook remained with Natalia. Then it was passed on to her son, Alexander Alexandrovich Pushkin. Fragments from the diary were published bit by bit on the basis of a copy but Pushkin's son never showed the original to anyone, not even to his children or grandchildren.

The diary contained bitter criticism of the Czars Alexander I and Nicholas I and this fact urged caution.

When Alexander Alexandrovich Pushkin died in 1914, the diary came into the hands of the poet's eldest daughter, Maria Alexandrovna Gartung. When she died, in 1919, it went to the poet's grandson, Grigori Alexandrovich Pushkin, a Red Army commander. He was then fighting in the Civil War and his wife decided to turn it over to a museum. In July 1919 the diary was transferred to the Manuscript Department of the Rumyantsev Museum (now the Lenin Library in Moscow). In 1923 it was published in the Soviet Union — in toto and on the basis of the original.

What Happened to Diary No. I?

The first news about the first volume of the diary appeared in 1925. In a Prague journal Modest Hoffman, a Pushkin scholar, referred to a letter from Pushkin's granddaughter, daughter of Alexander Alexandrovich Pushkin, Yelena Rosenmeier, who lived in Istanbul. She had offered the Soviet trade representative in Paris, M. Skobelev, some Pushkin memorabilia in her possession. But, she went on to say, under her father's will, she would not

After being introduced to Pushkin's young wife, Natalia, one of Pushkin's society acquaintances wrote: "His wife is a wonderful creature, but that calm, melancholy expression of hers is like a presentiment of misfortune. In neither of their faces can one read any prophesy of tranquillity, or of quiet happiness to come: on Pushkin's face one can see the entire play of his passions, and on his wife's all the melancholy that stems from renunciation of self."

Pushkin lost his life defending his wife's honour. Natalia was not in the least to blame, but for the rest of her life — she died at the age of 51 — she was tortured by the thought that she had been the involuntary cause of his death.

Maria, the poet's elder daughter, was married to Colonel Gartung. Tatyana Kuzminskaya, sister-in-law of Leo Tolstoy, wrote in her memoirs: "... I know that she served as a model for his Anna Karenina, not by her character, not by her life-story, but by her appearance."

His son Alexander was Pushkin's favourite. He had a long and illustrious life. An infantry general, a Knight of St. George's Cross, First Class, and a hero of the Russo-Turkish War (1877—1878), he was awarded a golden sword for selfless gallantry in action.

The ancient line of the Pushkins still survives. In many countries today there are descendants of General Pushkin's 14 children.

be able to sell the missing diary No. I until 1937 — that is, a century after the poet's death. Yelena Rosenmeier gave no indication whether she herself had the diary or whether it was in some other relative's possession. Hoffman quoted her as saying that the diary would go a long way toward clearing the honour of Pushkin's wife.

Diary No. II covers the years between 1833 and 1835. So Diary No. I could be expected to deal with an earlier period. But according to Hoffman, the lost diary would "shed still more light on the history of the duel". This means that it contained entries the poet made during the last years of his life. Some Pushkin scholars believe that Diary No. II

It was said of his younger daughter Natalia that her beauty "smote one like a sword". Determined and obstinate, she took after her father in character. We owe it to Natalia, who became Countess of Merenberg by marriage, that Pushkin's letters were preserved, unlike those of his wife. In 1876 Natalia handed them over to Turgenev for publication.

Sophia, Countess of Torby, one of Pushkin's granddaughters. Her mother, Natalia Merenberg, unhappy in her first marriage, succeeded in getting a divorce — something practically unthinkable in Russia in those days — and subsequently married Count Nicholas of Nassau. Sophia became the morganatic wife of Grand Duke Mikhail Mikhailovich, grandson of Czar Nicholas I.

was a fair copy of some of Pushkin's daily entries which he took from the unknown diary. Possibly Pushkin expunged scathing political comments from Diary No. II deliberately, being well aware of the daily possibility of a house search. He could have hidden Diary No. I and never kept it with his other papers in his study.

In 1923 Hoffman met Yelena Rosenmeier to try to persuade her to sell him the diary, using the argument that it was too risky to keep so valuable a manuscript in private hands. However, she refused categorically and said that the diary was in "very safe and reliable hands".

The existence of the diary was confirmed by a grandson of

Pushkin, Nikolai Alexandrovich Pushkin, who lived in Brussels. He said that he had seen it in childhood in his father's home.

Another mystery surrounding Pushkin's papers concerns the letters written him by his wife, Natalia. From Pushkin's replies (and he always reacted warmly to her letters) it can be deduced that she wrote him some 45 letters. But the correspondence itself is missing. It is not surprising that scholars are tremendously interested in unearthing them since, along with the first diary, they represent the only source of unpublished, missing Pushkin material. Her letters would no doubt also cast more light on her own personality, still not fully explored.

Until 1880 they were in her son Alexander's possession. He turned them over to the Rumyantsev Museum on condition that they would remain unpublished for another 50 years. But long before the expiry time — apparently in 1919 — the letters disappeared. Signs indicate that they were returned to the poet's heirs. Many of his descendants live in Moscow, but none of them has the missing letters.

Numerous Pushkin scholars believe that they are to be found abroad, perhaps in the same hands as the missing diary. This is supported by the fact that in 1923 Yelena Rosenmeier offered a well-known collector, Onegin (A. F. Otto), photostat copies of Natalia Pushkin's letters, but at the last moment changed her mind.

Where Is the Diary?

When the letters disappeared from the Rumyantsev Museum, Pushkin's grandchildren in the line of his youngest daughter, Natalia, lived abroad. Natalia was the morganatic wife of Austrian Count Nicholas of Nassau, and the title of Countess of Merenberg was conferred upon her. One of her daughters, Sophia, was the morganatic wife of Grand Duke Mikhail Mikhailovich (what irony of fate — the granddaughter of Pushkin married the grandson of Nicbolas I, who had hounded the poet!). Czar Alexander III was displeased with the unequal match and forbade his nephew to live in Russia. The Grand Duke and his wife settled in Britain. Sophia bore the title of Duchess of Torby. Her daughter, Nadejda, married George Louis Mountbatten, Marquess of Milford Haven, whose sister was the mother of Prince Philip of Greece, now the consort of Queen Elizabeth II. In this way Pushkin's granddaughter Nadejda, wbo died recently, was connected by marriage to the Queen of England.

By saying that Pushkin's diary was in very safe and reliable hands, Yelena Rosenmeier could have meant the British descendants of Pushkin.

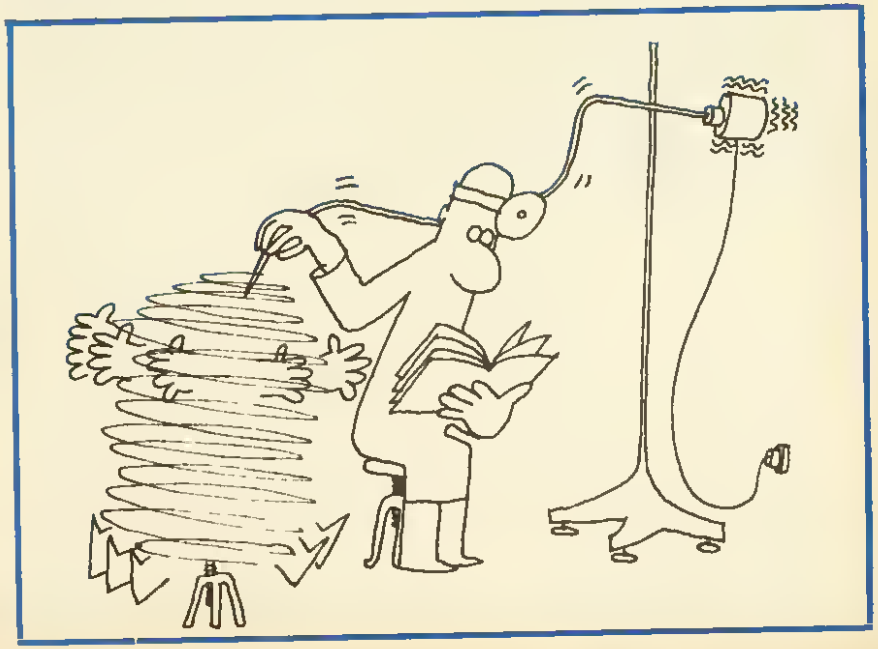
If that is the case and we really are on the right track and the diary and letters are safe and sound, then why should the truth still remain untold?

Here is one possible tbeory. It can be assumed that the diary contains caustic remarks concerning royal power in general and Nicbolas I in particular. Since Pushkin's British descendants are Nicholas' descendants as well, it can be imagined that they might not be overanxious to have the diarv published.

The theory that the diary and Natalia Pushkin's letters are in Britain is widespread. But there is another one.

Not long ago the newspaper **Vechernaya Moskva** (Moscow Evening News) published an interview with M. N. Osipova, a close friend of Pushkin's son, Alexander. She says that she does not know where diary No. I is, but in 1915 she heard that it had been bought by Prince Yusupov. Alexander Alexandrovich Pushkin himself said that "that rogue Yusupov keeps the first part of my father's diary under lock and key".

Wherever the diary and letters may be, along with any otber material relating to Pushkin's life, original, copies or photostats, the time has come to publish them. The fact that this priceless legacy is still being concealed represents a great loss to Russian and world literature.



"As a chemist I am convinced that it is possible to obtain nutritious substances from combinations of elements contained in air, water and earth."

Dmitri Mendeleyev

Synthetic Food

from the Journal PROCEEDINGS OF THE USSR ACADEMY OF SCIENCES

Dr. Alexander Nesmeyanov is the man who led the team of scientists in the Institute of Organic Chemical Compounds of the USSR Academy of Sciences, which, in 1964, succeeded in making synthetic soft black caviar of such high quality that only the experts could distinguish it from the real thing.

A proper diet for human beings should include a daily intake of proteins, fats, carbohydrates and vitamins. Today all the necessary vitamins can be made in factories. The industrial synthesis of fats presents no problem, either — although with the vast quantities of natural fats available there seems to be no call for fats to be produced artificially in the forseeable future.

The same applies to carbohydrates (starch, sugar and glucose). Agriculture can meet the demand, and apart from that synthetic carbohydrates cannot compare with the natural product.

It is protein that is in shortest supply. The most important sources of protein and the percentage protein content of a number of common foods are given in the table below.

Food	Protein content (%)
Soya bean	35
cheese	30
beans and peas	19—20
meat	14—20
fish	12—16
eggs	12—13
bread	5—10
milk	3
potatoes	2

Production of these basic foods does not meet the minimum requirements of the world today. In South America, Africa and some Asian countries there is chronic protein starvation.

Mankind has tremendous untapped agricultural resources, but however great they are, they are not unlimited and it is time to

give nature a hand and start manufacturing proteins.

Livestock are really very inefficient "factories" for processing raw materials (fodder) into proteins (milk and meat).

Seventy to eighty-five per cent of the fodder they consume is required for the upkeep of these "factories", and only about 30 per cent is returned to man in the form of milk, and even less in the form of meat.

This natural "production process" is as old as time. It was known to the ancient Egyptians and Assyrians, and has remained virtually unchanged to the present day, unlike other realms of human endeavour such as the production of metals and power which have undergone radical changes.

Now, the chemical industry, which itself has undergone radical changes, promises to revolutionise the food industry. It will not replace the natural production of food but will supplement it to a large degree.

If fodder, instead of being fed to cattle, were subjected to some fairly simple operations in a chemical plant, it would yield five or six times as much protein as could be obtained after processing by "living factories".

Pure, dry protein, unlike meat or milk, may be stored at room temperature indefinitely without deteriorating. Thus the chemical and microbiological production of protein could boost man's protein requirements faster and more economically than any increase in the natural production of protein.

A similar situation obtains with regard to crop-farming, which is less efficient than chemical synthesis at transforming the nitrogenous substances in the soil and those applied in the form of fertilisers into protein. With the artificial method nothing is "wasted" in the form of inedible roots, leaves and so on.

Another very important factor is that a synthetic protein industry would not be subject to the vagaries of the weather or to pests and plant diseases.

Thus, chemical and biological methods offer the most promising way to expand the world's food resources, particularly the supply of protein.

The chemical processes either extract ready-made protein from substances which contain it, or they synthesise amino-acids which build the protein molecule and are the "flavouring" constituent of food.

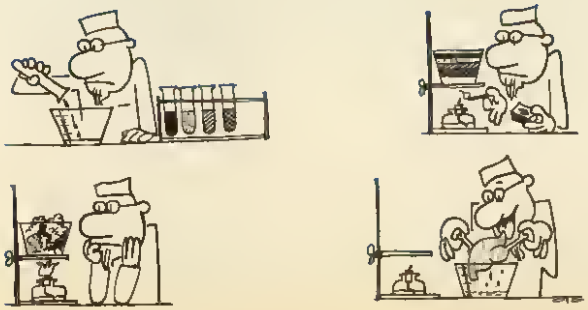
The microbiological method consists of growing micro-organisms in suitable media. Yeast cultures, which are very rich in protein (20 % — 50 %), can be grown on cheap raw materials such as the waste products of the alcohol or oil-refining industries, and obtain protein with as high a nutritive value as that of the hen's egg. Chemical purification can ensure the production of proteins that have no taste or smell.

But food must be appetising and attractive in appearance. It must taste and smell good and be of a suitable consistency. All these qualities can be induced artificially. Taste stems from four components — sweet, sour, bitter, salt. Suitable additions of sugar, acid, mustard or salt can produce the desired flavour. The smell of food can be reproduced relatively easily, too, by chemical means. The correct use of aromatics can make an artificial steak or any other food smell exactly the same as the natural product. And modern chemical technology can give man-made food the desired texture — soft caviar that is really soft, fish that is flaky, and so on.

The Institute of Organic Chemical Compounds has developed a microbiological process for manufacturing black granular caviar. To obtain the globular particles of correct size and consistency, a solution containing the required substances passes through a spray of calculated dimensions and the droplets so formed pass into an oily environment. The particles then go through a tanning process, designed to envelop them in a film which is neither too soft or unstable nor too hard or rubbery, but exactly the consistency of natural caviar.

Caviar produced in this way is so "real" that even expert tasters find difficulty in differentiating between it and the natural product, and as far as nutritive value is concerned, the synthetic product can surpass its natural prototype.

Artificial caviar is just one example of the capabilities of the chemical industry in the field of protein synthesis. Results obtained at the Institute of Organic Chemical Compounds indicate that the time is not far off when man will be able to produce artificial meat, fish and other high protein foods which will be virtually indistinguishable from natural foods, but which will be more nutritious and cheaper to produce.



Arctica — a Lost Continent?

by Vladimir MARKIN
from the weekly NEDELYA

Among the posthumous papers of Professor Yakov Gakkel, a Soviet Arctic research worker, were notes on his hypothesis that a vast Arctic continent had once existed where the Arctic Ocean now is. These have been published by the Arctic and Antarctic Research Institute, together with additional corroborative material.

The American and Asian shores of the Arctic Ocean, which are linked by the underwater Lomonosov and Mendeleyev Ranges, have much in common geologically. It has also been established that the rocky tips of the Lomonosov Range stood above the sea some 25 or 35 centuries ago.

The flora of the Taimyr Peninsula is much more like that of the Canadian Arctic Archipelago than that of Chukotka, on the Asian side of the straits.

Birds of passage which normally hug the coastline even in warm climates fearlessly fly over the vast grim icy Arctic Ocean.

This is all evidence that Europe and Asia were once linked with America by an Arctic continent across which flora and fauna migrated.

Such a land mass must have formed a barrier between the western and eastern Arctic which kept the warm waters of the Atlantic from the Arctic region and perhaps this was a factor in the formation of the huge ice caps which spread far south in Europe and America during the Ice Age.

The Arctic islands which singly or in groups surround the North Pole may be remains of such a continent. The vast Arctic shelf, the shallows of the Arctic seas, may be another relic. These shallows are cut by submerged valleys, once extensions of the Siberian rivers Ob, Yenisei, Lena and Kolyma.

The Arctic continent must have submerged gradually over thousands of years, and this would have had a tremendous effect on the climate of the Earth.

Further development of Gakkel's hypothesis is likely to shed light on many riddles of the Earth's past, and a fuller knowledge of the history, geography, climate and plant and animal life of our planet will enable man to forecast future changes and extend his power over nature.

The Biggest Walking Excavator of Them All

by Boris BAIDAKOV and

Oleg OPARIN

from the newspaper

SOVIETSKAYA ROSSIYA

A walking excavator which will be able to scoop up the equivalent of a large railway truck full of earth is now on the drawing board at the Research Institute of the Ural Heavy Engineering Works in Sverdlovsk. The excavator, the ESH-80/100, will stand higher than a six-storey building. Its length will be 410 feet, its total weight 10,000 tons, its bucket capacity 3,000 cubic feet and boom length 330 feet.

Fully loaded, the bucket will weigh 300 tons. Standing on the edge of a quarry, the excavator will be able to scoop up a bucket of earth from a depth of more than 160 feet raise it 130 feet above ground and carry it over a distance of 660 feet — in one minute.

The photograph shows a life-size projection of the excavator against the background of the Institute building.

The controls of the giant are to be housed in a glassed cabin and one person will be able to control the operation of each unit of the excavator.

The engine room will be in two sections with an overall length of 138 feet and will house powerful engines requiring as much electricity as it takes to light a large city. Seventy-five ton gantry cranes will carry equipment along each section.

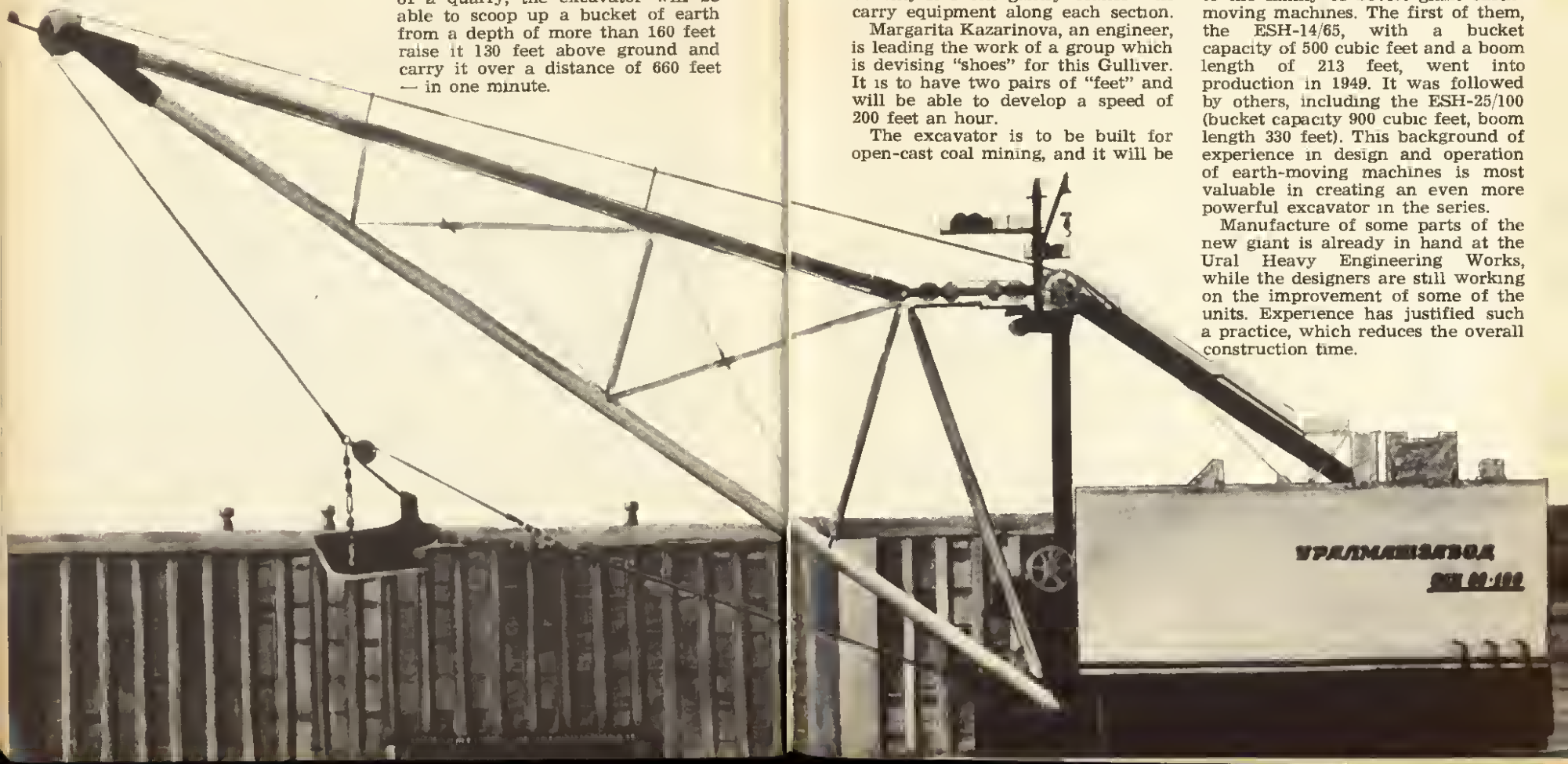
Margarita Kazarinova, an engineer, is leading the work of a group which is devising "shoes" for this Gulliver. It is to have two pairs of "feet" and will be able to develop a speed of 200 feet an hour.

The excavator is to be built for open-cast coal mining, and it will be possible only to make on-site tests. There is insufficient space for a testing ground in the plant's neighbourhood.

Veniamin Raskin, senior engineer, believes that the excavator is very suitable for open-cast coal or ore-mining and that it should prove a highly profitable investment. "We estimate that the excavator will handle more than 30 million tons of coal each year," he says, "enough to fill half a million railway trucks!"

The ESH-80/100 will be an addition to the family of Soviet giant earth-moving machines. The first of them, the ESH-14/65, with a bucket capacity of 500 cubic feet and a boom length of 213 feet, went into production in 1949. It was followed by others, including the ESH-25/100 (bucket capacity 900 cubic feet, boom length 330 feet). This background of experience in design and operation of earth-moving machines is most valuable in creating an even more powerful excavator in the series.

Manufacture of some parts of the new giant is already in hand at the Ural Heavy Engineering Works, while the designers are still working on the improvement of some of the units. Experience has justified such a practice, which reduces the overall construction time.



Thinking Aloud

by Konstantin SIMONOV, writer

from PRAVDA

I was in the area of Damansky Island only a month after the events there.* But even before I saw it the name of that little Island in the River Ussuri evoked a host of thoughts and recollections within me — about the recent and the not-so-recent past. And now, having returned home, I want to go over those thoughts once more.

Damansky Island is about a mile long.

The sector of the Soviet Far Eastern border along which we flew or travelled on the ground — from one border detachment to another, from Bikin to Lake Khasan — is about 600 miles long.

Yet that 600-mile sector is only a seventh part of the USSR's border with China, since the entire border is roughly 4,000 miles long.

Yet there is even more to think about than that 4,000 miles.

There is another 2,500 miles of border between China and the Mongolian People's Republic, a border which the Soviet Union has undertaken to defend, if necessary, as its own. This it did 30 years ago. I saw it and I very well remember what happened.

Then, in 1939, the Japanese militarists were disputing that border between People's Mongolia and China in the name of Pu Yi, the Emperor "of all Manchuria" installed by them on the throne of the Manchu Kuo state (incidentally that Emperor Pu Yi, after being "re-educated" in Peking, became, of all things, a deputy to the All China People's Political Consultative Council!), and also in the name of Prince Deh Wang, ruler of Mintsuan, the puppet state set up by them in Inner Mongolia.

Goodness knows in whose name "the great helmsman" might suddenly think of presenting further territorial claims on People's Mongolia! Perhaps in the name of the Manchurian Emperor Kansi, who way back in the seventeenth century conquered the whole of Mongolia and accepted the defeated Mongolian feudal lords as Manchurian citizens.

Once you are dealing with "the great helmsman", you have to get used to any kind of surprise. Of course, it is better to get along without them, but it would be sheer negligence not to keep the possibility in mind.

I was thinking about all this as I stood with the chief of the border post and a few other border guards on top of Zaozernaya Hill. It was the very hill where 31 years ago the Lake Khasan events began.* It began, like the Damansky events, in a treacherous way without warning: "Fire!" There was the same attempt to get their way by sheer effrontery, by bloodshed and the force of arms, and then to listen to the protests of their neighbours from positions of strength, from the positions they had captured.

We stood on the top of Zaozernaya Hill. Behind us, on the banks of Lake Khasan, on the slopes of the hills around it, the pyramids of common graves dug here in 1938 stood out white. To the right, on a level with us on the very top of the hill, stood our border tower. Not far away one could see almost the same kind of tower on another hill — a Chinese border point.

On that side of the border stood four young Chinese in military uniform. They were members of that army which continues to call itself the People's Liberation Army, they were sons of a country in which, despite all the craziness of its present leaders, the land and all that is within the depths of the earth, the factories and other industrial enterprises are the property of the working people, not the landowners and capitalists.

I looked at them and I could not forget the face and the voice of Chu Teh, who in October 1949, at an enormous meeting in Tientsin, at which I was present, said, to thunderous applause from everybody assembled: "Before I begin my speech, I want to tell you that we have today

* The events referred to are the armed attacks by Chinese soldiers on Soviet border guards on March 2 and 14, 1969.

* What is meant here is the attempt by the Japanese militarists to seize the Soviet heights of Zaozernaya and Bezimyannaya on the border with Korea.

received news that the government of the Soviet Union is the first in the world to recognise the Chinese People's Republic!"

Nor can I forget those soldiers, commanders, and political instructors of the Chinese People's Army with whom I was 20 years ago when they liberated the south of China from the Kuomintang. I cannot forget their faces, their voices, their revolutionary enthusiasm, their friendly gratitude to my country, the country of the October Revolution.

It is not simply that I cannot forget all this. I do not want to forget it. I do not want to forget it even now, as I look at the tense faces of those armed Chinese soldiers standing not far away from me on the other side of the border.

But I cannot remember only that, because today, after Damansky Island, there is something else I cannot forget — the blood which has been shed and which now lies between us.

No, it is not a question of blood for blood. Nor of calling for vengeance or hatred. I do not feel hatred as I look at those four armed Chinese on the other side of the border. I do not wish them death, nor evil.

But I cannot rid my head of the thought that tomorrow they, too, may become murderers, like those on the ice of Damansky Island, who butchered that first seven of our troops who went forward for talks and did not put a finger to their weapons.

I am not all of the opinion that those two or three hundred Chinese soldiers who lay in ambush on Damansky on that first March night, or those 20 or 30 Chinese soldiers who came out onto the ice in the morning and became murderers, did so of their own free will.

In such cases people do not murder without orders from above. I am convinced that this order was not given by the commander of the Chinese border regiment, nor by the chief of the border guard, and nor even by the command of their military district.

I am firmly convinced that this order to kill came from above. From so far above that it is impossible to go any higher!

I thought of all this as I stood on Zaozernaya Hill, and a dull, oppressive feeling of anger rose in my heart. Not, of course, against the four standing there across the border. If they find themselves in similar circumstances to those others, and suddenly receive the order to kill, in 15 minutes or an hour, perhaps three, after carrying out that order, they themselves will irrevocably fall victim to it and will also die, as those others died who first turned their tommy-guns upon us on Damansky Island.

But what can one think of those who gave that first order before the events on Damansky Island were unleashed? What

yardstick of evil can one use to measure their actions — both those already accomplished and others, perhaps, designed for the future?

Could anyone imagine that on a 4,000 mile border one side could for a prolonged period keep their sights trained on the other side with impunity, without causing any harm? Or that it could insist on maintaining that atmosphere of preparation for murder which was generated at the moment the first submachine gun burst forth on Damansky Island.

The very thought that such a thing was possible was monstrous both in its inhumanity and its senselessness. Senselessness because it is the most senseless tbing of all to imagine that the Soviet border can be disputed or more clearly defined by force of arms.

Since the revolution in October 1917, our neighbours have on more than one occasion attempted to clarify their borders with us and it has even happened that some territorial adjustments have been made to their favour. Without going too far back we may recall the comparatively recent clarification of our borders with Iran.

But this clarification took place at a peaceful negotiating table and I think we are hardly likely to make an exception for those who, having broken off talks with us on border questions in 1964, are now trying to press their claims by submachine gun fire on Damansky Island.

Fire is met with fire. This cannot be helped. And those talks which were once started and were broken off, can, despite all that has happened, be continued.

I thought about the time, 20 years ago, when I was a Pravda war correspondent with the Fourth Field Army, commanded by Lin Piao, which was then liberating the last provinces of South China from the Chang Kai-shek clique.

And now, 20 years later, on the orders — and I am profoundly convinced that it is on the orders, of that same Lin Piao, soldiers of the Chinese People's Liberation Army have been killing Soviet border guards, and as a result I am visiting the Soviet-Chinese border as a Pravda reporter!

In all of this there is incredible historical absurdity, and although one might expect a person in his fifties not to be surprised at the strange changes that occur in people who acquire a taste for unlimited power, it was nevertheless a blow right to the heart. Twenty years ago I could never have imagined that these illusions of grandeur could develop on such a scale in the future, nor that they could be accompanied by chauvinist frenzy of such force tbat military threats would be uttered against the first Socialist country in the world.

The only good thing about it

was that now, 20 years later, I was here in the Far East simply as a reporter and not as a war correspondent.

If you were to ask me why, when recalling Mao Tse-tung whom I saw several times and deeply respected two decades ago as head of the Chinese People's Republic, do I now experience for him feelings akin to personal hatred, I would know how to answer you. Because it is the very thought of this man and his words and actions in the past few years that have stopped me casting out the monstrous fear: "And suppose, despite everything, despite all our desires and plans for the future, we have to come here some time as war correspondents?"

Provocations which in essence can be regarded as bloodless shots across our borders, have been engineered by the Chinese over a long period.

They have taken place in the vicinity of Damansky Island and twenty miles or so away from that spot. At that very frontier post which I visited two years ago and wrote about at the time. Not only there, but far away, thousands of miles distant in the Tienshan Mountains, where China shares a border with Soviet Kirghizia, where in 1959 I visited a remote frontier post perched at a height of over 9,000 feet and border guards told me about the first incursions across our border, quite deep sorties but without bloodshed. That is all true. But in the life of the border guards there comes a point which in one second changes everything! At this point the accustomed word "provocation" suddenly acquires a new and terrible adjective: "bloody".

This is what happened on Damansky Island.

Such things do not happen out of the blue. They are preceded by lengthy and secret preparation.

It is only looking at the surface of things to imagine that the crackle of Chinese submachine guns on Damansky Island was a sudden occurrence that was only subsequently reported to Peking. When one looks into the essence of things, one finds that everything was the other way round. Yes, the bullets whined over Damansky Island. But the shots were fired in Peking.

Every country has its complex, unresolved problems, especially a great country like China, with its constantly growing population.

But however much I think about the difficulty of those problems, no one is ever going to convince me that the question of the Chinese people's wellbeing can be solved by means of war and the forcible seizure of territory belonging to other states. And those in China who pretend that internal difficulties may be solved by territorial disputes, claims and threats, are not simply misguided, but are deliberately lying to their people.

Unfortunately, those lies already have quite a long history. Once when I was reading through some old magazines, I came across an article written by Sergei Tretyakov in 1925 from the headquarters of Feng Yui-hsiang, one of the most famous Chinese generals of the time and one of the most "left". According to Tretyakov, there in the general's headquarters, hung a "map of China's shame" as an aid to visual propaganda.

Tretyakov saw that it showed the Ussuri Territory, Korea, Indo-China, (that is, in present day parlance Vietnam, Laos, and Cambodia) as territory that had been "severed" from China.

But 11 years later, in a talk with Edgar Snow, Mao Tse-tung declared that "China's immediate task was to regain the lost regions and not only to defend its sovereignty on that side of the Wall". In 1939, developing his thought, he named Nepal, Korea, Burma, and Annam (that is Vietnam again) as areas severed from the Chinese state by the imperialists. In the same period he declared that the Mongolian People's Republic, "automatically, of its own accord, would become part of the Chinese Federation". Later, in 1964, in a talk with Japanese politicians, he was already beginning to engage in speculation about the territory and population of the Soviet Union, and declared that Khabarovsk, Vladivostok and Kamchatka had become Russian territory only a century earlier, adding significantly: "We have not yet presented our account on that score."

In all these statements, sometimes separated by many years from each other, there is a certain consistency, something that bodes no good to anyone, especially when one recalls the inhuman calm with which that same Mao Tse-tung spoke a few years ago of the possibility of another world war, saying: "If the worst comes to the worst and half of mankind perishes, there will still be the other half left."

As I stood by the graves of our border guards I could not help remembering his words about the "score" which included Khabarovsk and Vladivostok, I could not forget his moral readiness to despatch half mankind to their deaths. I could not help remembering all that, because the first Chinese shots over the ice of Lake Damansky represent in my mind an echo of the ideas of the "great helmsman" resounding over our border.

Incidentally, if one considers these ideas in connection with the principle of inviolability of frontiers, then, as was reported in the foreign press, eight years ago the Chinese defence programme for 1961 contained the following directive: "In conducting operations for pacifying

rebels in areas not far from borders with neighbouring states (on the Chinese—Indian, Chinese—Nepal, and Chinese—Sikkim borders) it is essential to observe forthwith the instructions not to penetrate deeper than 12 miles into neighbouring territory." (my italics — K. S.).

It is true that this list did not include instructions concerning other borders, in particular, the Chinese-Soviet, did not specify how many miles one might or might not penetrate across it, for one reason or another. But evidently the general spirit of the directive played its role nevertheless in the Damansky Island events.

Many times in the history of the Soviet Union our border guards and our soldiers have halted war as it advanced upon us. To be more exact, they have halted what might have become war had we lacked self-control or displayed weakness or helplessness.

It is not always possible to halt war — we know this from history. And we also have a duty to remember this.

But when it is possible for a border conflict to develop into war or not to do so, much depends on those who are on the frontier. To begin with, until there is bloodshed it depends on their self-control, and later when despite everything blood has been shed, on their military ability.

I do not want to count the graves on the Chinese side of the Ussuri. On the contrary, my wish is that it should never become possible for further graves to appear there. It was not for this that we Soviet people gave so much of our spiritual and material strength to support the Chinese people, not in order that the sons of the Chinese people might today be felled by our bullets.

When I heard that a second attempt to seize Damansky Island had met with a decisive rebuff from our side, I understood, of course: a decisive rebuff means graves on that other side of the Ussuri. And graves are always graves. Just as widows are always widows. And a man worthy of the name of man has no right to gloat over the number of "their" graves or "their" widows. In the final count, nowhere in the world can there be "their" graves, "their" widows, "their" tears. All the tears on earth are the tears of mankind.

Recently I have read a number of English, German, and French books which give by way of commentary on the utterances of Mao Tse-tung — and on that list of territorial claims on our country which he has not yet presented — information about the population of vast areas of China contiguous on the 4,000-mile-long border with the Soviet Union.

According to the figures given in these books, population density in those areas of China is about ten persons per square kilometre on the average. This is many times less than in India and also in our country, in such places as the Donbass or the Ferghana Valley.

Yet if one does not know the real facts one can imagine from certain recent Chinese statements that the Chinese areas along the Soviet border are so over-populated that they are like a barrel about to burst its hoops. Any minute the hoops will crack and tens of millions of people for whom there is no room in their own country will spill over the border!

Yet it seems that this is not the position at all. Even if one exaggerates population density in these border regions ten times over they will still not be so thickly populated as the majority of states in Asia and Western Europe.

It is not of course an easy matter to populate these vast desert regions along the Soviet-Chinese border. Virgin land has to be brought under cultivation, prospecting must be carried out, roads built, and the steppe land irrigated. In fact all those things must be done which we ourselves have been doing in our own country for many years — in Kazakhstan, in Siberia and the Far East.

This is no simple matter, of course, and demands tremendous efforts on the part of the whole country. We know this very well from our own experience.

Yet apparently some people across the Chinese border have the idea that instead of getting on with such rewarding yet difficult peaceful work, which is likely to take many decades, it would be simpler to descend upon the Soviet Far East with their territorial claims, in particular the Maritime Territory, again and again repeating: "There are 700 million of us!" As if a large population inevitably gives its government grounds for using that fact to threaten other nations!

I am neither a diplomat nor a historian. But having returned from there, from the Maritime Territory, I want to say simply, as a human being: these claims are ridiculous not only to the millions who were born and bred there and who live there today, but also to anyone like me who knows even a little about that part of the country.

As far as the history of the Maritime Territory is concerned, there is no need to struggle through many-tomed historical works. One could simply dip into a book on Far-Eastern geography by the writer Vladimir Arsenyev, and read that despite "the totally unfounded view that the Chinese possessed the Ussuri Territory from time immemorial, it is possible to prove quite clearly that the opposite is true: the Chinese made their appearance in the Ussuri Territory quite recently."

Arsenyev illustrates his statement with simple and convincing statistics: according to these, between 1861 and 1865, the period in which Vladivostok was founded, there were no more than 870 Chinese in the whole of the Ussuri Territory. In five years, in 1870, the Chinese population had doubled, and by 1880, 20 years after the founding of Vladivostok, about 7,000 Chinese were living in the Ussuri Territory.

In brief, even the rather small Chinese population which appeared in the Maritime Territory in those years did so only after Russian settlers had begun to open up this stern land, when the first roads and harbours had been constructed, in short, when it had begun to be developed in the modern sense.

If one speaks of our Maritime Territory today, then, of course, it must be admitted that as a result of 50 years of tireless

work on the part of Soviet people living there this territory has been transformed beyond recognition, and it has no doubt become an even more tempting titbit for those who hanker after the possessions of others.

There is so much in our Maritime Territory: the beauty that is Vladivostok, the ocean port of Nakhodka, the three thousand ocean-going ships of the Far Eastern Fishing Fleet, the dozens of new factories, and the big new power stations (one of which, by the way, is being built not far from Damansky Island).

And what the territory still lacks, it will have! Because the people here love their land and know how to work.

And for all their generally peaceful character they also know how to use weapons. I did not want to speak of this, but events on the border in recent time have been such that I feel I must . . .

Now It's Nerves of Gold

from the newspaper
LENINSKOYE ZNAMYA

Pioneering theoretical work on the replacement of human nerve trunks with metal substitutes, which has been carried out by Dr. Boris Ognev, Corresponding Member of the USSR Academy of Medical Sciences and member of the International Association of Surgeons, and engineer Vassili Gudov has now been confirmed clinically.

Artificial facial "nerves" of gold wire, as well as of tantalum, platinum and tungsten have already been proved effective by a Moscow clinic. This opens up possibilities of replacing the nerves of the larynx, the abdominal cavity and other parts of the human body.

Research was carried out on the problem for several years at the Doctors' Refresher College in Moscow.

Hundreds of experiments on animals by Dr. Zinaida Skudarnova M. Sc. (Medicine) revealed that even large nerve trunks, such as the facial nerve, could be replaced by metal conductors.

Operations on human patients followed — more than thirty people suffering from defects of the facial nerve underwent treatment by Dr. Ludmilla Belyakova at the clinic of Dr. Boris Preobrazhensky, a member of the USSR Academy of Medical Sciences.

The facial nerve is a frequent sufferer as a result of head wounds and inflammations, and its natural restoration is extremely slow and incomplete.

Of the thirty-odd patients treated, in twenty-three the functioning of their facial nerve and muscles was restored quickly and completely.

This is an entirely new field of medical investigation, requiring the combined efforts of experts in medicine, biology, physics and chemistry. The results obtained so far are the work of a group of doctors and engineers centered on the Department of Topographic Anatomy and Operative Surgery at the Moscow Doctors' Refresher College. Some of the work was carried out in idustrial establishments.

The designers of these new artificial nerves show a preference for tantalum because it is chemically stable and does not affect living tissues, and is cheaper and more durable than platinum or gold.

The wires used as "nerves" are from 0.4 to 1.6 inches long, with diameters ranging from 30 to 150 microns. They conduct biocurrents just as effectively as the natural nerves.

Now improved and more complicated designs, including some with multiple wires, are being developed in the expectation that substitutes may be found for thin nerve fibres as well as large nerve trunks.

World Chess Champion Number Ten

from the SOVIET PRESS

"The Iron Tigran", after an intensive struggle that lasted two months has ceded the chess laurels to Boris Spassky, who three years ago suffered defeat in a similar match with Tigran Petrosyan.

Boris Spassky is the fifth Soviet chess player to become world champion, and the tenth in the world ever to hold the title. His predecessors were Wilhelm Steinitz, Emmanuel Lasker, Jose Raoul Capablanca, Alexander Alechine, Max Euwe, Mikhail Botvinnik, Vassili Smyslov, Mikhail Tal and Tigran Petrosyan (the last four are all from the USSR).

Boris Spassky was born on January 30, 1937 in Leningrad. His talent for chess became noticeable at a very early age, and he developed it at the Leningrad Palace of Young Pioneers. It was there that schoolboy Boris Spassky took his first steps towards the peaks of chess under the guidance of Vladimir Zak.

He rapidly made his debut in the international chess arena: at 18 he was already a grandmaster and junior world chess champion.

In his youth he was good at athletics, and he still goes in for sport. Sport of various kinds, above all swimming, play an important part in his training programme for crucial tournaments.

Spassky is a graduate of Leningrad University. By profession he is a journalist. But, as an illustrious figure in chess, he is, of course, far more often the subject than the writer of articles. And by winning the championship he has laid himself open to mass attacks from his colleagues. (At the press centre of the Moscow match about 150 Soviet and foreign correspondents were accredited).

Here is one interview which Boris Spassky gave immediately after the match with Tigran Petrosyan.

What do you think were the reasons for Petrosyan's defeat?

I think he was somewhat constrained and uncertain of himself. Particularly in the second half of the match. I knew that Petrosyan was circumspect but I was surprised that he was sometimes over-circumspect, avoiding the slightest risk, at times even when this meant acting contrary to the demands of the position, to the need for decisive action.

The second surprise was that as a player (in the best sense of the word, of course) Tigran Petrosyan has not advanced during the past few years. He has remained at the same level and even, perhaps, has begun to play a little worse. Here, I think, the greatest blame lies with the present system of competing for the world championship: it does not encourage a champion to take part in major tournaments and to be constantly concerned about

EX-CHAMPIONS' VIEWS ON CHESS TITLE CONTEST

from the newspaper VECHERNAYA MOSKVA

When the smoke of the Spassky Petrosyan battle had finally settled the five living ex-world chess champions gave their views on this duel.

Mikhail Botvinnik (USSR)

My opinion is that the economic style of play, of which Petrosyan is the chief exponent, did not pay off. It has proved useful only in an individual game or an individual competiton. This style of play does not allow for the full exploitation of a chess player's nerve. It tends to reduce the capacity of a grandmaster and to diminish his chess potential.

Tigran Petrosyan (USSR)

Of course, I am not happy about losing. Both before the contest and during the match I had confidence in myself — I was certain I would win. I had no thought of losing even when my opponent had a two point lead. Why play the game at all if you are not self-confident?

It was a very difficult match and I think that is why the quality of the games was not very high. We both made mistakes — we were under great stress and nervous tension. Even so, I don't think this match was the most difficult I have had to play in competing for the chess crown. For me the toughest contest was the one against Mikhail Botvinnik.

It is still too early to say whether I shall start all over again and make another bid for the world championship. I feel that I need to have a rest and mull over what has happened.

Vassili Smyslov (USSR)

Boris Spassky is 32 years old — the best age to become a world champion.

Spassky's game did not show obvious aggressive tendencies; this was probably due to the fact that his opponent excels in the art of defence, and he had to proceed from a careful evaluation of the situation. Spassky chose powerful opening moves that were geared to scoring in the middle game. It was there that he shifted the main brunt of the battle, and there that his creative imagination blossomed in full force.

I would rank the 5th and the 19th games an the end-game of the 17th among the most brilliant achievements of the new champion.

New horizons open before Spassky now and the chess world can expect of him breat-throughs in the theory and practice of chess problems.

keeping up his fighting form.

Nevertheless, it was the most difficult match of my ilfe.

More difficult than the previous match with Petrosyan? After all, you lost that one!

Yes. I believe the Germans have a saying: "You can't trust a serious matter to a man of less than 30." But at the time of that match I was not yet 30. As you grow older you begin to understand things to which you never gave a thought before. Perhaps that is why this time it was more difficult.

I must admit that training for the match was extremely nerve-racking and intensive. The most difficult thing was, probably, working out a definite strategic plan, which I did not have three years ago when I played my first match with Petrosyan.

What were your personal relations with Petrosyan during the match?

Very proper. It is true, that in contrast to the previous match we did not analyse the adjourned games together. Incidentally, it was I who took the initiative in this, since I feel that a joint analysis may give one's opponent undesirable information. A fight is a fight after all.

How do you feel now that you are champion?

Perhaps this will sound a little insincere, but all I feel now is fatigue. Three years ago I was bitterly disappointed at my defeat, which, incidentally, I completely deserved. If I had lost again I would have tried not to make a tragedy out of it. And another thing I know for certain: had I lost the match, I would have abandoned the fight for the world laurels. For it is simply

Mikhail Tal (USSR)

The match was a very exciting battle. It was not only a duel between two men; it involved us all, the chess players who analysed the games, lived through all the ups and downs, cheering for one side or the other.

Spassky played brilliantly and his creative inspiration is beyond praise. Much will be said about the champion, but I want to say a few words about the loser.

Petrosyan played well too, but I believe that to a certain extent he had lost some of his unique sense of danger — he was more vulnerable, if I may say so, and I had the impression that he was tired at the end of the contest.

There were an unusual number of outright victories in the match and I, being an attacking type of chess player, am very happy about this. Chess pieces live a turbulent, full life when their commander is

impossible to play according to the present exhausting system. These short matches between contenders for the world crown, these long, more than two months duels with the champion, which drain all one's energy, the bitterness accompanying any match — are not to my liking. I always find it very depressing.

You used to be in favour of holding tournaments. Now that you are champion will you stick to that point of view?

I believe that chess can and must bring people pleasure, and furthermore in our time it is a major and orginal means for promoting understanding between people of all kinds. I am still for good tournaments, and I consider that the system of selective competitions established by FIDE to decide on the contender who will play for the championships is already archaic. I am not prepared to put forward anything else, for all that must be carefully considered. But I can see that the forces of the leading chess players are now equal and I am convinced that the title of world champion will no longer play such a role as it has in the past.

Do you imagine that Petrosyan will continue to fight for the world championship?

Petrosyan's defeat is in a sense a blow to him. But I think he may find that kind of blow of great advantage. I do not know whether he will fight for the world championship title, but I am sure that he will begin to play more freely, in a more untrammelled way, and that means more strongly than at present — his ability and strength need no commentary.

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daring and not afraid to take the initiative.

I am delighted that a grandmaster with a brilliant style has become the World Champion.

Max Euwe (Holland)

The chess world has followed the Petrosyan-Spassky match closely for two months. Now it is over and this oustanding competition will go down in the annals of chess histotry. Generally people tend to underestimate events which they witness, but even now it is possible to say with a great degree of certainty that the match of the two remarkable chess players not only produced a new World Champion, but also epitomised the development of chess.

In my opinion, the new champion is an ideal chessplayer with an all-round, universal style, and there can be no doubt that this style will become the standard for play in the next three years.

The Power of Art

The Russian playwright, Denis Fonvisin, wrote a play called *The Minor,* about a young idler, Mitrofanushka, whose name has since become proverbial among Russians for laziness and stupidity. The original for his character was an 18-year-old boy of his acquaintance, Alexei Olenin. The shock of seeing himself on the stage was so great that Olenin stopped frittering his life away, put off an early marriage, and settled down to his studies. Eventually he graduated from university and became director of the St. Petersburg Public Library and a President of the St. Petersburg Academy of Arts. He published a number of works, including one on Ryazan antiquities and another on Slavonic garments, weapons, customs and education.

* * *

Mozart was once asked by a young man how to write a symphony.
"You're too young," he said. "Why don't you start with a ballad?"
"But didn't you write a symphony when you were nine?"
"Yes, but I didn't ask how to do it."

* * *

One day an organ-grinder stopped under Rossini's window and started to play some melodies from his *Wilhelm Tell,* but so badly that the irritated composer gave the man some money and told him to go away.

Then he had a bright idea.

"Oh, by the way, do you play any of Halevy's music? You do? Well, here's some more money. You go and play under his window."

"I can't," said the organ-grinder.

"Why ever not?"

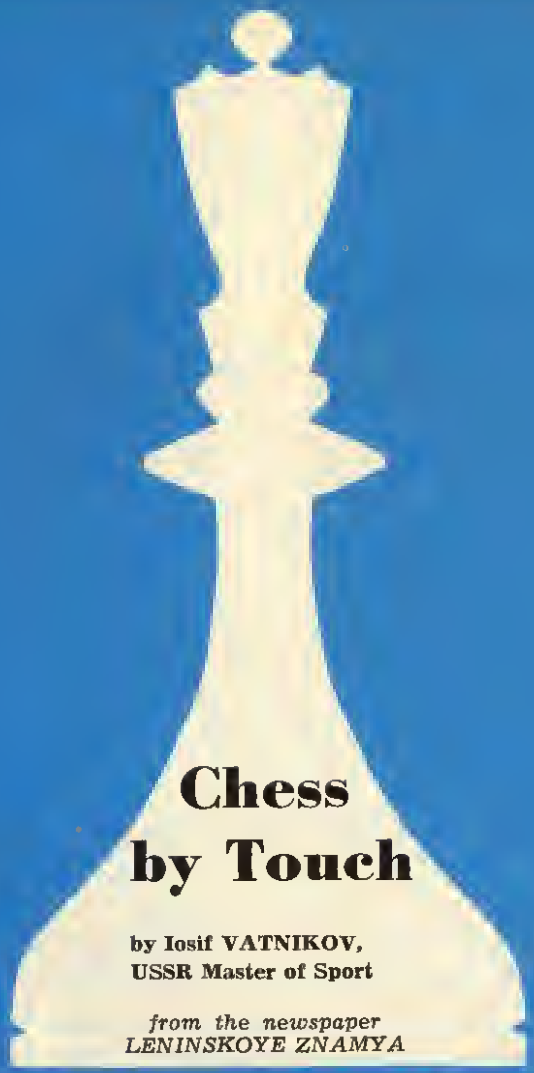
"I was playing under his windows, and he sent me to you."

* * *

Donizetti was famous for writing operas at a fantastic speed. One day someone mentioned the fact that Rossini had written his *Barber of Seville* in 13 days.

"What do you think, maestro," he was asked, "is that at all possible?"

"Why not?" he answered. "Rossini always was a slow worker."



Chess by Touch

by Iosif VATNIKOV,
USSR Master of Sport

from the newspaper
LENINSKOYE ZNAMYA

Soviet chess players scored yet another victory when the first Soviet team to enter the World Chess Competition for Blind Players won the recent contest in Britain defeating players from 20 countries to become the reigning world champions.

Naturally special conditions [illegible] for blind players before [illegible] a move the player may finger [illegible] own and his opponent's pieces [illegible] rule that once a piece is touched it must be moved is waived) and [illegible] sets adapted for blind players are used. Each square has a hole in

the piece. The black squares on the board are raised slightly and each white piece has a nick in it so that the player can "see" the game with his fingers.

In these competitions there is another departure from standard practice. Each player has his own board. On making a move he declares it to his opponent who then repeats the words and on receiving confirmation makes the move on his board.

Otherwise the rules are the same. Players are not permitted to move the pieces around while they are analysing the possibilities. These have to be weighed up mentally as in an ordinary game.

The chess sets used by the Soviet team, which were made to the specifications of the All-Russia Society for the Blind at the Stationery Factory in Perkhushkovo near Moscow, won much acclaim in Britain and were presented to the sponsors of the competition when the games ended — this has become a tradition of the tournament.

The captain of the Soviet team was Victor Chirkov and at the end of the competition he was surrounded by newsmen eager to hear his story.

Chirkov is a press-operator at a lighting appliances factory near Moscow, an enterprise staffed by members of the Society for the Blind, and he is the chairman of the Moscow Regional branch of the Society.

He has twin sons, both of whom are good chess players too, and they help their father by reading chess journals and books to him to develop his chess theory and to prepare for competitions.

In his capacity as chairman of the Society branch he speaks to many blind audiences and tells them about chess tournaments and matches for blind players, and he sometimes plays simultaneous games with up to 15 partners.

Here is one of the games Chirkov played in the world championship competition: White, Chirkov (USSR); Black, Gottschacher (Austria):

1. P — K4 : P — K4; 2. Kt — KB3 : Kt — QB3; 3. B — Kt5 : P QB3; 4. B — R4 : Kt — KB3; 5. 0 — 0 : B — K2; 6. R — K1 : P — QKt4; 7. B — Kt3 : 0 — 0; 8. P — B3 : P — Q3; 9. P — KR3 : Kt — QR4; 10. B — B2 : P — B4; 11. P — Q3 : R — K1; 12. QKt — Q2 : Q — B2; 13. Kt — B1 : Kt — B3; 14. B — Kt5 : P — R3; 15. B — KR4 : Kt — KR2; 16. B — KKt3 : B — B3; 17. Kt — K3 : Kt — K2; 18. P — Q4 : B — K3; 19, P(Q4) XP(K4) : PXB : 20. Kt — Q5 ! : B X Kt; 21. P X B : Q — Q3; 22. Kt X P : B X Kt; 23. B X B : Q X P; 24. Q — Kt4 ! : Kt — Kt3; 25. B — K4 : Q X QB; 26. B X R : Q X R chk; 27. R X Q : R X R chk; 28. K — R2 : R — K3; 29. B — Kt7 : Kt — B3; 30. Q — Q 1: Kt — K4; 31. P — KB4 : Kt — B5; 32. P — QKt3 : Kt — K6; 33. Q — B3 : K — B1; 34. B X P : Kt (K6) — Q4; 35. R X P : R — K 6; 36. Q — Q1 : R X P (B3); 37. B — B4 . . . Black resigned.

Chirkov was recently awarded the title of USSR Master of Sport.

An Infantile Disorder

by Valentin CHIKIN

from the youth daily,
KOMSOMOLSKAYA PRAVDA

May the First, 1918 — the first May Day to be celebrated under Soviet power.

Pyotr Novitsky, a top cameraman, and Mikhail Koltsov, the man in charge of the newsreel section, spent almost the entire day trying to catch up with Lenin. At last, in Khodynskoye Field, on the outskirts of Moscow, they spotted his car. Lenin was ready to leave, but they persuaded him to stay a few minutes longer, to allow them to film him for posterity on that first, historic May Day. The camera whirred . . .

A Prince Topples

That day — Lenin's 50th as Chairman of the Council of People's Commissars — had an unusual beginning. At about 10 o'clock in the morning Lenin set off for Red Square. But on the way he was surrounded by demonstrators in the grounds of the Kremlin who had come to topple the monument of the former "kinglet of Moscow", Prince Sergei of the Romanov dynasty. Lenin joined in. The monument shared tbe fate of the Vendome Column, pulled down during the Paris Commune. Lenin seized the rope, everyone pulled together, the column creaked and then fell in pieces...

It is a pleasure to take revenge on bygone tyrants. But should feelings of vengeance always be given free reign, especially if works of art are involved which reflect a particular age? History does not forgive such acts. Some time after Prince Sergei had been destroyed the workers of Petrograd (now Leningrad) asked Lenin what they should do about the innumerable monuments to czars which stood in the city's squares. All monuments, Lenin firmly replied, should stay where they were. Coming generations should be able to see the oppressors of their people as portrayed by their own epoch.

War on Revolutionary Phrasemongering

On May 1, Red Square looked truly red and festive with flags and bunting. Only the strips of black canvas over the common grave and around the "lobnoye" (that circular structure on which so many had been executed in olden times) gave it a touch of austerity, a reminder that the wounds were still fresh and that much tribulation lay ahead.

At first Lenin was by the memorial to Minin and Pozharsky, in the middle of the Square. Then he made for the "lobnoye" to make a five-minute May Day speech. Lenin had to strain his voice and it was obvious that in the din and the hubbub few could hear him. He then crossed the Square and from a wooden platform in front of the History Museum delivered another short speech. Later, while his car crawled through Neglinnaya Street, the workers surrounded it, lifted him up and he had to make a third speech.

The fragrance of spring, the heady joy of celebration . . . but posters with slogans or the familiar voice of a speaker returned people to their current problems and the tangled political struggles of the day.

The dispute with the "left-wing communists" went on. Two days before addressing the All-Russia Central Executive Committee of Soviets * (the session had been held in the spacious Polytechnical Museum to attract more workers) Lenin had promised to make a thorough analysis of the errors committed by the "left-wing communists", specifically by Bukharin. Lenin said it was extremely important and promised to discuss it in print. A week later a series of articles appeared in Pravda concerning left-wing infantilism and the petty bourgeois spirit.

Shortly before, he had written in a newspaper that there had to be a fight against the revolutionary phrase. It must be fought so that some day somebody would not be able to speak the bitter truth that "a revolutionary phrase about revolutionary war destroyed the revolution". It was easy to fight an open enemy, he went on to say. But childish naivety, infantilism, raised to the level of a policy? These "left" . . . how much decisiveness they had and how little reasoning!

What caught the eye, first of all, Lenin said, was the abundance of suggestions, hints and innuendoes concerning the Brest-

* Organ of supreme power. First elected by the Second All-Russia Congress of Soviets on November 7, 1917. – Ed.

Litovsk * peace. If the discourses of the "left-wing communists" on platforms and in various theses were to be summarised — what would they amount to? That we must fight until the victory of the world revolution and not agree to a dishonourable peace. In other words, no thinking revolutionary could survive, could agree to such a disgrace. The logic of a Polish nobleman, said Lenin scathingly, who exclaims while dying in a beautiful pose with sword in hand: "Peace is disgrace, war is honour".

The "left-wing communists", continued Lenin, discussed things from the viewpoint of the Polish nobleman, while the Bolsheviks did so from the viewpoint of the peasant, from the viewpoint of the worker. "I am ready to sign," he said, "and would consider it a duty to sign, a treaty that was twenty times, a hundred times more humiliating, in order to gain a few days' breathing space to evacuate Petrograd and thereby ease the sufferings of the workers... Any serious-minded peasant or worker understands that peace is a means of gathering strength".

Lenin went on to say that Bukharin had found yet another way to torpedo the "interests of the peasants" on the peace issue. He had said that any type of peace would suit the peasant, but what a strategic miscalculation for the state! He had said that Lenin should ask the opinion of any military man. Well, Lenin had. He had asked the opinion of a French officer, and a count at that. The count had looked at him with smouldering eyes, but what had he said? He had said that he was a Royalist, a supporter of the monarchy in France as well, and he passionately wanted to see Germany defeated. He had made it quite clear that he was no sympathiser of Soviet power and yet had said that the Brest-Litovsk peace had had to be signed because there was no alternative. So much for "ask any military man", concluded Lenin.

A Mare's Nest

When the "left-wing communists" failed to frighten the Russian Communist Party with their phrasemongering about the "treason of Brest-Litovsk" they set about trying to frighten it with the spectre of capitalism. Lenin's statement that state capitalism would be salutory for Russia, which was then threatened by rampant petty bourgeois slipshodness, and that it would be a measure which would ease the advent of socialism, produced an outburst of invective from the "left-wingers". The Soviet socialist republic going over to state capitalism! How could that be a step forward? If that wasn't a betrayal of socialism, what was?

This was the root of the error made by the "left-wingers". The situation called for an article.

Firstly, the "left-wing communists" misunderstood the very nature of the transition period. Economically, "transition" meant that the new system contained elements, particles and bits of both capitalism and socialism...

Secondly, they failed to see that the main enemy of socialism was the petty bourgeoisie. In words the "left-wingers" were merciless enemies of the petty bourgeoisie, but in reality they aided and served it. They expressed its views. That was what they were doing when in April 1918 they fought "state capitalism". It was a classical case of finding a mare's nest. Speculators, marauders in trade and disrupters of the monopoly — these were the real economic enemies of Soviet power.

But the workers were not afraid of the greatest possible "state capitalism" (something centralised, organised, controlled and publicly-owned — precisely what Russia lacked). They wanted it to be employed by the Soviet government as a weapon with which to fight disintegration into petty ownership.

Thirdly, by brandishing the bogey of state capitalism, the "left-wing" elements showed that they were unable to distinguish the economic differences between the Soviet state and a bourgeois state. As Lenin wrote, it is the psychology of a philistine to believe that socialism can be achieved without learning from the bourgeoisie. One cannot conceive of socialism that is not based on all the lessons learned by large-scale capitalist culture.

A few words more. Now that the "left-wingers" had gone so far as to claim that the introduction of labour discipline would mean a step back, it was time to raise a hue and cry... In socialist construction, they alleged, reliance must be exclusively upon such motives as the inner urge, enthusiasm, realisation of Soviet aims, etc. Introducing discipline would amount to encroaching upon "spontaneous class action".

Lenin castigated this as something of an unprecedentedly reactionary nature and a menace to the revolution. "If I did not know that it was being said by a non-influential group and that any meeting of workers would reject it," he wrote, "I would say that the Russian revolution was lost. But the workers are confidently rejecting it — today one of their May Day demonstration slogans reads: 'We have defeated capital, we shall defeat our own disorganisation'."

As he had promised, Lenin pursued his dispute with Bukharin, though it required a great deal of energy. Now, each time

* A peace treaty signed on March 3, 1918, by Soviet Russia and Germany on onerous conditions. It was abrogated by the All-Russia Central Executive Committee of Soviets on November 13, 1918. – Ed.

Lenin returned home after a long discussion, he was gloomy and silent. Not that he was exasperated or confused by the hostile views or outcries expressed even by his close comrades: simply as a human being he found it hard to break with people to whom he had been attached by years of common struggle. At night he could not sleep and his nerves grew taut... But Lenin saw and knew that thousands of new fighters for the revolution were rising, that their forces were multiplying...

On that historic May Day the streets of Moscow leading to Khodynskoye Field were crowded with infantrymen and cavalry, machinegun carriages and engineer troops. By the time Lenin's car reached the Field the troops were lined up to form a square bordering the huge green carpet of meadow. At the other end of the Field various types of planes were lined up.

At last the hour-long ceremonial march began. The universally admired cavalrymen were followed by an international battalion, a school of instructors and a detachment of sailors. Then a virtuoso Newport rose into the air, followed by other, lesser aircraft.

The cameramen, who had talked Lenin into posing for them, did a good job. But what was most remarkable, in the evening the events of that May Day celebration could already be seen on the screens of six of Moscow's "electrical theatres".

Electricity in Bones

Recent research has been furnishing increasing evidence of the presence of piezoelectricity in bones. In other words, mechanical stress causes an electric potential in bones. Scientists suggested that this effect enables bones to change in size under the load they bear.

The piezoelectric effect is also found in other animal and plant tissues. Possibly, piezoelectricity is vital physiologically in the adaptation of different organs to environmental effects.

Sakhalin — World's End

by Leonid MALYUGIN

from the magazine ZVEZDA

From a distance Sakhalin, the big island opposite the mouth of the mighty Far Eastern river, the Amur, seems a bare, bleak place of lifeless black rocky cliffs rising from the sea.

But a closer look reveals that the rocks are not all black. Sakhalin is really like a layer cake — rocks of red, yellow and brown lie between seams of coal and of basalt. Many varieties of mosses, grasses and flowers grow amid the rocks.

Sakhalin's northern shores are washed by the cold Sea of Okhotsk, while its most southern point, Cape Krilyon, whose lighthouse blinks at the Japanese beacon Soya, is exposed to warm currents and southerly winds. Six hundred miles from north to south, it is a land of great natural variety. Each valley is different: in the north one sees sparse, stunted larches in moss-covered tundra, while in the south lianas snake through virgin forest and cherry trees blossom pink. Cows graze in Sakhalin's meadows, and on the nearby island of Tyuleny (Seal) are the famous rookeries of fur-bearing seals and the bird colonies.

Sakhalin is icy mountain streams and hot springs, forest fires in spring and June rain and mist, fine days and winter blizzards, mountains and valleys, gorges and lowlands where sand covers roads and gardens and ocean waves lick the very walls of houses during storms.

Leonid Malyugin, a writer, toured Sakhalin recently. This abridged article relates some of his impressions.

Getting Under Way

I was on my way to the Kuriles, once known as the end of the world. The giant TU-114 turbo-prop took just eight hours to fly from Moscow to the Far Eastern city of Khabarovsk, where I had to change planes and fly across the Straits of Tartary. But you usually spend more time over that trifling distance than on the trip from Moscow — the weather is so changeable.

I had to wait 24 hours before the next stage of my journey, the flight to Yuzhno-Sakhalinsk. Unfortunately the straits were masked by dense fog, so I did not really feel that I was on my way to an island. Over the town, however, the fog lifted, and below I saw Sakhalin.

Snow lay on the tops of Sakhalin's mountains. Although they are not very high these mountains remain snow-capped because the summer is so short. Locally they are known as "sópki" — bald peaks.

It was drizzling in Yuzhno-Sakhalinsk. My plan was to have a quick snack there and then fly on to Yuzhno-Kurilsk. But just as the airport on Sakhalin opened, the weather closed down over the Kuriles and no one could say when flights there would be resumed.

I was forced to stay in Sakhalin. Actually I had arranged to look around there on my way back, but the weather altered my schedule. Squeezing into the packed bus I set off for the town.

Soviet Union's Island Territory

"How remote from Russia is the local life!" wrote Chekhov after his visit to Sakhalin in 1890. Today the islanders do not complain about their isolation even though they are more than six thousand miles from Moscow. On the contrary, they are proud of the fact that they live in the only insular administrative region of the Soviet Union. But while stressing their geographical exclusiveness they also want their life there to be as like life on the mainland as possible.

As I strolled through the streets of Yuzhno-Sakhalinsk I remembered a young friend who had gone to work there 10 years before. At first her letters were full of enthusiasm with descriptions of the sea and tbe mountains and her own home, a small Japanese-style house with sliding walls and an unusual stove, and other exotic features of her new life. But when winter came, her delight gave way to grumbles — her sliding walls offered little protection against the wind and her stove gave light but not warmth — and she soon returned to Moscow.

I wondered what she would say about the town now.

Whole streets of good sturdy homes are going up and people are moving in as fast as they are completed. The centre of the town is being reconstructed — a more difficult job than building new houses. Offices, theatres, a Pioneer Palace, a sports stadium, these and other municipal buildings have been put up. Journalists at a local newspaper told me:

"You should have seen us last year! We were all huddled together in three tiny rooms in a wooden house."

That evening I visited the excellently equipped modern theatre which opened in 1964.

Wooden houses will soon become a thing of the past in Yuzhno-Sakhalinsk. Only the museum of regional studies is to be preserved. It is built in the traditional style of a Buddhist pagoda.

The sports stadium offers many facilities and there is also a swimming pool and a gymnasium. Not a complete sports complex, it is true, but the people of Sakhalin have every reason to be proud of what they have. Now they can swim — even at the height of summer very few of them were prepared to plunge into the icy cold waters of the Sea of Okhotsk.

The scope of construction is vast. Secondary schools and a teachers' training college are being built, and also a clothing factory. Things are moving fast, sometimes more rapidly than on the mainland.

Newspaper announcements like "Sale of Central Asian Peaches", or "Holiday-makers, retired workers and housewives are invited to a berry and mushroom picking party" give an idea of the place.

Fruit and vegetables are still in short supply on the island. Tomatoes are as scarce there as pineapples are in Moscow, but things are improving. When they were unobtainable at home, I ate new potatoes in the Red Sails Cafe in Yuzhno-Sakhalinsk, a most attractive place designed by a young Sakhalin architect. The sea is the motif of its interior decoration — rock and driftwood are the materials used, and it has a huge fish tank.

Not long ago they had to eat dried potatoes or potatoes brought in from elsewhere, but now not only do the islanders grow sufficient for their own consumption but they sell a surplus on the mainland. There will soon be many more vegetables because a hothouse, large by Sakhalin standards, is being built near the town of Poronaisk.

Sakhalin has been called a treasure island and indeed it is. Besides having an estimated twenty thousand million tons of coal it is rich in oil and gas, which is piped across the straits to the mainland. There is gold there, too, in purer form than on the mainland. Sakhalin's pulp and paper industry produces eight per cent of the nation's paper and two per cent of its

The island is rich in oil, which is piped across the Straits of Tartary to the mainland.

cardboard. These products are sent to eleven of the Soviet Republics, to the Korean People's Democratic Republic, to Japan, Mongolia, the Democratic Republic of Vietnam, Cuba, India and other countries. Seal skins from Sakhalin are always snapped up at the annual fur auction in Leningrad, and its canned fish, red caviar and crab are exported all over the world.

Some of the Problems

There is a serious labour shortage on this rich island.

Experts in any field are welcomed on Sakhalin with a warmth and enthusiasm unequalled anywhere else. While I was there eighty-six doctors from eleven medical institutes on the mainland arrived. They were fêted on radio and television and in the newspapers, and posters of welcome to these young people were put up at the city gates.

High wages draw people to Sakhalin for there is an up to forty per cent loading on worker's wages there, as there is throughout the Soviet Far East and in the North and in some other places in the Soviet Union. But people leave the island too. "How long have you been here?" and "How long will you stay?" are questions people ask each other in Sakhalin.

Vegetables have to be cosseted by the collective farmers in these parts. Extensive hothouses are under construction.

Despite many privileges, college and university graduates are generally reluctant to go there. The rigours of the climate and its remoteness make young people think twice about it. Separation from parents and friends cannot be mitigated by a week's trip home. Flight schedules are so chancy.

The Sakhalin authorities are hoping to overcome this problem by training their own experts locally, and have already made a start.

"You must visit our Teachers' Training College," the local journalist told me. "You shouldn't miss our only college."

It proved to be an excellent training institution, well equipped and with a large student hostel attached to it. It provides consultation centres for correspondence students in five of the island's towns. Although the student body is large, entrance to the college is competitive for there are many more applicants than places. I wondered at all these young people showing a vocation for the difficult job of teaching. Perhaps they sought admission there because there were no other colleges?

Yes. That was the answer. Youngsters on the island may, it is true, enter the correspondence department of any college on

the mainland and very many of them do so. But these extra-mural students have a rather special problem. It can happen that when the time comes for them to travel to take their examinations all planes are grounded and sea transport suspended by raging stormy weather, which may abate only when the time for the exams is long past.

Now Sakhalin is planning its own Polytechnical Institute and this will reduce the number of experts who have to be induced to come from the mainland.

Another problem is to put holiday resorts within reach of the islanders. In the past, when it took weeks to get from Sakhalin to the Crimea or the Caucasus, people used to be granted four months holiday every three years. But this is undesirable on two counts. People need holidays more frequently than every three years, and, at the same time, having workers off the job for such a long time creates problems in the factories. Air travel has improved the position to some extent, but the distances are so great that the fare is too high for most people. So once again

the authorities decided to make the island self-sufficient. There are many curative springs there and the air is wonderfully invigorating, so they set to work to build sanatoriums and holiday facilities in three particularly beautiful parts of the island. Already these are very popular and more such development is in train.

Something about the People

"Fly up north," my newspaper colleagues advised. "Only in Alexandrovsk will you see the old-timers of Sakhalin. And you shouldn't miss Tymovskoye. It's famous all over the island."

So off I went. It turned out that Tymovskoye is famous for its pig-breeders and... for its singers! Pork and potatoes from Tymovskoye are sold all over the island and the choir of the Svinovod State Farm is well-known even on the mainland. Music started to take on there when Herman Babkin, a music teacher, settled here.

Babkin is still a comparatively young man although he has been on Sakhalin for 10 years. He started studying music in the Urals, but dropped it to go to

The port-town of Kholmsk lies between low mountains and the sea.

the Far East. He returned to the Urals, went south to Odessa and finally returned to Sakhalin with his wife and settled there. Just at that time a music school was opened at Yuzhno-Sakhalinsk. Babkin was about 30 but he took up his studies again and completed the course with distinction. As soon as he graduated he was offered the job of director of the music school in Tymovskoye. Then his real troubles started.

First of all his wife refused to move so far away, but he finally managed to persuade her. Then the new director found that he had no building for his music school, no instruments, no printed music, no teachers, and, naturally, no students. He had to work from the ground up.

He was invited to submit an estimate of his requirements.

"I felt it would be easier to write a symphony," he said.

But he did manage, and he pursuaded some of his old fellow-students to join him as teachers. Then came the entrance exam. There were three hundred applicants, so there was plenty of room for selection.

The music school is more than four years old now and is quite famous on Sakhalin. Last year its best graduates went on to study at the secondary music school in Yuzhno-Sakhalinsk, and the Babkin-trained Tymovskoye choir was recently awarded a diploma of honour in a competition on the mainland.

I met some of the Sakhalin old-timers, too. Yegor Gubin was one of them. He came to the island in 1889 as a child of four, when his mother followed her husband, who had been exiled there. Sakhalin was a place of exile until 1917. The family settled near Alexandrovsk. Yegor has done a bit of everything in the course of his long life: he has been smith, ship's mechanic and farmer. More recently he established an orchard, no mean feat in Sakhalin. Even now he is not idle — he works in his vegetable garden from morning to night.

Not so old in years, but still a veteran of Sakhalin is Nadezhda Potapova who settled in Alexandrovsk in 1930. She was a 17-year-old member of the Young Communist League, and one of a YCL team which had undertaken to build a state farm in the taiga (virgin forest). It was hard going. Their original tent town was at a place called Belkin Klyuch (Squirrel's Spring). They had to fight cold and scurvy as well as wrestle with the natural difficulties of the taiga, but they succeeded and carved out the first of Sakhalin's farms. Later on a large timber-felling centre was set up, and also a reindeer-breeding state farm and less specialised collective farms.

In 1941, at the outset of the Great Patriotic War against Nazi Germany, Potapova was elected chairman of the local

rural council. Her duties were many — she saw the men off to the front and then, with their wives and children and the old people in the community, she continued the farming of the land. Her hardest job was to notify the next-of-kin of men killed in action, another of the chairman's duties.

She took me to see a park in Alexandrovsk. By ordinary standards it wasn't much of a park. There were no big trees. But in the north of Sakhalin it is something of a miracle. And it has been developed in an interesting way. Newly-wed couples plant a tree when they are married and later on add another after the birth of each child.

Then we went to the People's Theatre. Local amateurs were performing Gorky's **Yegor Bulychev and Others**. The standard was high and the audience applauded warmly. Taking the final curtain with the actors was a slim, smiling elderly woman. She was the director of the theatre, actress Ludmilla Rossova. Potapova took me backstage to meet her. She has long since retired on pension but still clings to the theatre, the love of her life. "The hardest part of working with amateurs is to persuade them to rehearse for a long enough period... They are always so anxious to show their work on the stage. But we came to terms in the end," she told me in response to my enthusiasm about the show.

Later that night I escorted her home, and as we walked through the quiet streets she told me her story.

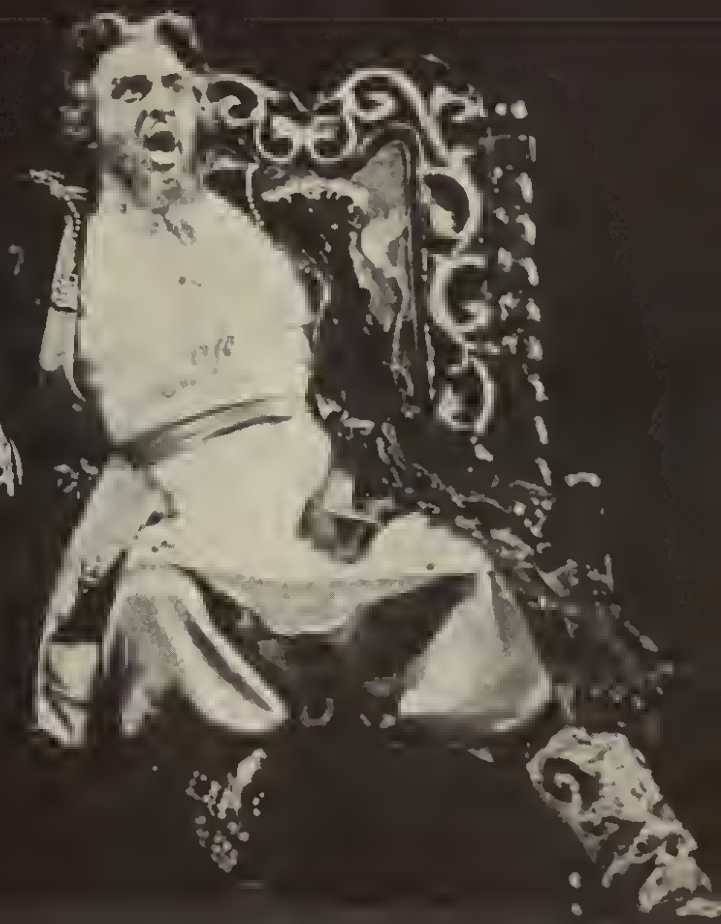
She has travelled a great deal throughout Russia, first with her father, who was a well-known actor, and later with her husband, an actor too. Her husband had a penchant for out-of-the way places, and finally they made their home in Sakhalin and were for many years associated with its theatre. When her husband died, Ludmilla Rossova, who had come to regard the island as her second home, stayed on.

Every spring she goes to Moscow to spend some time with her sister, but with the coming of autumn she returns to Alexandrovsk for a reunion with her daughter, who is a teacher and her grand-daughter upon whom she dotes. And she returns to her own beloved theatre.

Early next morning I flew back to Yuzhno-Sakhalinsk. I was met by one of my friends. He dashed up the gangway and without letting me get a word in shouted: "To the hotel, quickly! Grab your bags and take the plane for the Kuriles! The weather has improved and Kurilsk airport is open! Go now or you'll have to stay here for another couple of weeks!"

It really was time to go. Goodbye, Sakhalin!

Russian Bass Ivan Petrov



Russia has long been famous for its basses, and among her many excellent bass voices today one of the best is Ivan Petrov's.

He is the third Petrov to appear in the history of Russian opera, though no relation to his illustrious predecessors of the same name.

Ivan Petrov comes from Siberian stock. He was born in 1920 in Irkutsk, getting on for 3,000 miles from Moscow. There his father worked on the world's longest railway — the Trans-Siberian. The boy was fond of the forbidding landscapes of Siberia. He was entranced with the swift-flowing River Angara and the crystalline waters of Lake Baikal, celebrated in an old Russian song as "a glorious sea". As a child, sailing down the river and on the lake, Ivan listened to the slow, plaintive songs of the people.

In 1930 the family moved to Moscow. At school the tall, lively boy soon began to shine in sports, going in for volleyball and athletics. Coaches predicted he had the makings of a first-rate volleyball player, and perhaps he would have lived up to their expectations if not for the school singing master, who singled out the boy for his musical gifts and beautiful, sonorous bass.

It was on his insistence that Ivan entered the Glazunov Music School, and while still a student there, the young man was accepted by the Moscow Opera Ensemble, which was headed by its founder, the famous tenor Ivan Kozlovsky.

When the war broke out Ivan Petrov was exempted from military service. But he was no stranger to the roar of guns, spending six months with a concert troupe close to the front lines. Soviet soldiers and officers highly appreciated his mighty voice which now and then drowned the thundering guns.

In the middle of the war 23-year-old Ivan Petrov joined the Bolshoi Opera Company, where he was soon offered leading roles.

One of his earlier successes was the part of King René in Tchaikovsky's **Iolanta**. A loving father, overcome by the tragedy of the blindness of his only daughter, Petrov as René was majestic and reserved with others but infinitely tender to Iolanta, who did not realise that she was blind. In an aria that seemed to come straight from the heart Petrov poured out the profound sorrow of a powerful man who is powerless against misfortune.

Petrov himself believes that he is at his best in tragic parts.

His second success came in the role of the gallant Russian knight Ruslan, in Glinka's **Rusland and Ludmilla.** Despite his enemies' intrigues, Ruslan searches for and eventually finds his bride, Ludmilla, who has been kidnapped by an evil sorcerer during the wedding feast.

A tall, handsome Ruslan, Petrov captivated audiences not only with the wide range and the rich timbre of his voice but also with his stagecraft.

Petrov's talent as a tragic actor reached great heights in the role of Kochubey in Tchaikovsky's Mazepa, an opera based on Pushkin's poem Poltava. The valiant commander Kochubey is slandered and falsely charged with treason, and his dearly beloved daughter is seduced by his slanderer. Petrov as Kochubey, notably in the scene before the execution, reached a pinnacle of dramatism and deeply moved his audiences.

Other aspects of his talent came to light in the role of Mephistopheles in Gounod's Faust. Mephistopheles has been singularly lucky on the Russian stage. Starting off with Fyodor Stravinsky (father of the famous composer) and Fyodor Chaliapin, it has always found excellent interpreters. Of the contemporary performers one of the best is Ivan Petrov, an insidious and handsome devil, gliding easily on the stage, ingratiating and cynical, attractive and repulsive yet colourful and interesting from the moment he appears on stage.

In every one of his roles Petrov has a masterly command of his voice. There is great variety of intonation, while his acting carries conviction.

But the acme of his vocal and acting skill is the part of Boris Godunov — acclaimed not only in Moscow and Leningrad but in Paris, London, Milan and Stuttgart. A Paris music critic wrote: "The entire audience held their breath as if they had been witnessing a real drama . . . This was a unique voice with a wide range, warm and tinged with a thousand nuances, colouring the phraseological intonations in that wondrously melodious Russian language . . . That was an exceptional performance. With his incomparable voice, temperament and sincerity Ivan Petrov held the public in his hand."

People's Artist of the USSR and an honorary member of the Grand Opéra, Ivan Petrov has performed over 30 operatic roles. He frequently appears in concerts and his programme includes the works of Glinka, Tchaikovsky, Bach, Glück, Mozart and Schubert.

"As usual," the singer informed SPUTNIK, "I am continuing to sing roles in the current operatic repertoire. At present I am preparing for another tour of France and the United States and am working with pleasure on a series of new recordings, which will include Prince Igor by Borodin. For the first time, I shall do the title role. I shall also record a concert of Russian songs, accompanied by the magnificent choir of the Bolshoi Theatre."

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Riga Beer

by Siegfried SCHUSTER

from the magazine NAUKA I TEKHNIKA (Riga)

Probably there's not one of our readers who would refuse a cold, slightly bitter drink with a white cap of foam on a scorching summer day.

You don't have to be a specialist to notice that beer from different breweries varies considerably in taste. International beer experts consider Riga beer to be one of the finest — in quality it is no worse than Czech lager or Bavarian dark beer. What are the secrets of good beer? A Soviet journalist put this question to a brewer at the Prague Staropramen brewery. His answer was beer = malt + hops + water.

"Yes, but that goes for beer throughout the world," you say. "Isn't it possible to be a little more precise?"

For clarification I turned to the Riga brewery, although I was not sure that I would hear anything sensational there. My misgivings were partly justified. Mr. Barkivis, the chief brewer, outlined the already familiar formula, adding something which sounded approximately as follows: "You're a journalist, trying to find out the recipe, then you'll rush into print with it and then somewhere or other someone will start making Riga beer by the Riga method. And since the recipe alone is definitely not all there is to it we shall be showered with complaints that today the secrets of the old masters are not preserved in Riga as they used to be."

During our talk we returned to the initial formula. I was told that the best beer is obtained only when all three main ingredients — water, hops and malt — are of a high quality.

Water. At all stages of brewing, water plays an outstanding role. Apparently it is not only its biological composition that is important but even more so its chemical composition. And here it is important to emphasise that in quality Riga's water is second only to that of Vienna throughout the whole of Europe.

Hops. Today hops for beer brewing are grown only in twelve countries. Soviet hops give pride of place only to those of Czechoslovakia and Bavaria. And to grow good hops you need moist, fertile, sandy soil. The Riga brewery gets its hops from the Ukraine, where they are cultivated specially for brewing.

Malt. Over the past few centuries the methods of malt production have not changed significantly anywhere in the world. However, in preparing malt for beer brewing the methods used are only similar up to a certain point. After that it depends on the kind of beer to be made. And colouring and caramel malt are added as required, and also a certain quantity of hops. The young beer goes into vats where it ferments at a certain temperature. The fermenting period varies considerably. Riga beer of the Senchu brand ferments for 26 days, the Riga brand takes 42 days and porter, 90 days.

But still we don't know what the trade secrets are? During our talk about the "secrets" of good beer, I had to agree that strictly speaking there were no secrets and, as I have already said the whole world produces beer by the same method. Nevertheless . . .

In the Soviet Union Riga beer is produced at 555 breweries. But only a few of them make it as well as they do in Riga. The Riga brewery was founded in 1815. It has none of the modern apparatus you might find in other large breweries in the country. It does not compare in quality of equipment and size of production area with the Moscow Ostankino brewery or the Leningrad Stepan Razin or Krasnaya Bavaria breweries. The key to the success of the Riga breweries is a compound of strict observance of technical requirements and experience (60 per cent of the workers have been there for about ten years and the specialists for 20 or more years). There is tradition, too, of course: Baltic beer is among the most ancient, it was drunk back in the early centuries of our era.

Some little known information. The preparation of one bottle of beer requires two or three thousand barley grains.

On the label "Riga Original" is the figure 12°. Different brands of beer sport different figures. Some readers may imagine that these figures refer to alcohol content. In fact this is a scale showing what percentage of organic or manufactured substances are contained in the beer. The average alcohol content in all brands of beer is 3.5 per cent.

One of the main indicators of quality in beer is the depth and stability of the froth on the top. This is how it is tested. When beer is poured into a glass, one should start very rapidly, then fill the second half of the glass slowly. Good beer should have a head of about 1.2 to 2.4 inches, and the froth should not disintegrate in less than three minutes. Poor beer has a thin layer of froth or no froth at all.

St. Sophia's of Kiev

by Tatyana MIKHAILOVA

from the newspaper
KOMSOMOLSKOYE ZNAMYA
(Kiev)

It was a very long time ago, nine centuries ago... On the golden throne of Kiev was a prince to whose name history has added the word "Wise". Not Bloody, not Terrible, but Wise. Under Yaroslav the arts and enlightenment flourished. He founded the first library, opened schools, and started the keeping of chronicles.

But it is not only from books, not only from the chronicles that we have an idea of the fate of Kiev Rus, of which he was the ruler. The finest record of the time is its architectural monuments. More faithfully than the prejudiced word, St. Sophia's of Kiev tells us about this ancient Russian power. The construction of St. Sophia's Cathedral was initiated in 1037 by the Great Prince Yaroslav the Wise, and it was erected in the central position in the city and on the highest piece of ground. Thanks to this and also the fact that the main roads of the city converged from all four points of the compass

Great Prince Yaroslav the Wise, who initiated the construction of St. Sophia's in 1037.

Model of the Cathedral as it must have looked originally.

upon the cathedral square, the first thing a person saw on coming to the city, no matter which gate he entered through, was the great bulk of St. Sophia's with its many cupolas. Even in the midst of modern blocks of flats of six or eight storeys, the cathedral's mighty silhouette stands out, striking in its magnificence and beauty. It is not hard to imagine the impression it made in the old days as it stood out against a background of tiny wooden hovels.

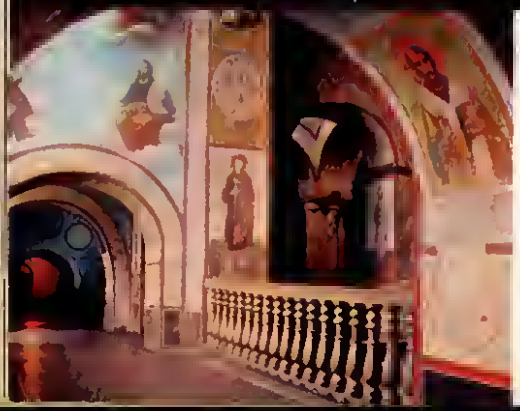
All the separate elements of the building are in proportion with one another and are repeated in rhythmic patterns. The powerful mass of the cathedral rises smoothly to the semicircle of the central cupola. Surrounded by an open gallery, the building has an ethereal quality and makes an impression of elegance and strength.

With all its austerity and clarity of line, one can nevertheless see that the builders to some degree strove for variety in

the details of the facade. Whereas on the south side the arches are semicircular, on the north there are lancet arches. This desire for variety is also the reason for the asymmetrical placing of the staircase towers.

St. Sophia's is built of long orange-pink bricks alternating with natural stone, and the pink walls combine delightfully with the leaden gleam of the cupolas — amidst green leaves, beneath a winter sky, against white sparkling snow. And the stones of the cathedral talk. They have a miraculous voice — the voice of past centuries. In the walls of the cathedral the old masons immured large clay vessels with the spout facing outwards, and these have the effect of amplifiers. The human voice does not fade beneath the mighty vaults, it is not lost in distant corners of this huge cathedral, but echoes resoundingly and distinctly throughout this vast space.

The magnificent external architecture of the cathedral is in



Contemporary view of part of the Cathedral.

The fresco of the Holy Apostles.

Mosaic-decorated central altar.

harmony with the solemnity within. As you enter the cathedral you immediately come under its spell. Beyond the rows of columns, the cathedral is wrapped in mysterious gloom and, finally, as you enter the central nave, you are struck by the bright light flooding the central semicircular space decorated lavishly with mosaics and frescoes of many colours. This is one of the most valuable collections of the eleventh-century decoration in the USSR. The frescoes are based on religious motifs but many also depict secular affairs — one shows an ancient hippodrome with the prince, the public and the judges sitting in their boxes; in another place there is a hunting scene, in another, there are dancers, in still another there are a puppet theatre, musicians and mummers. In the central nave the family of the Great Prince Yaroslav the Wise are shown — his sons and daughters identified by the fact that they are without halos.

Not only are the walls richly decorated, but there are wonderful mosaics on the floor and stairs, and also marble and slate carving, rich textiles and valuable church plate.

All kinds of people crossed the threshold of St. Sophia's of Kiev. A symbol of the greatness of this ancient Russian state, the cathedral was not merely a place for worship. Merchants, travellers, and ambassadors came here to bow to its unique beauty and went away to spread its fame in the many tongues of the earth. Kiev Rus had extensive connections with other lands. Yaroslav was married to Ingigerd, the daughter of the Swedish King Olaf, and at his court there lived the English princes Edwin and Edward. Yaroslav's daughter Elizaveta married Harold the Bold, King of Norway, and her sister Anastasia became Queen of Hungary. The coat-of-arms of the French Queen Anne (Anna Regina), Yaroslav's third daughter, is still preserved in the National Library in Paris, and a statue of her stands at the entrance to the monastery of Senlis, not far from Paris. On the base is the inscription: "Anna of Russia, Queen of France, founder of the Cathedral. 1060."

In the words of the chronicles, Prince Yaroslav erected the cathedral in Kiev in honour of St. Sophia, wise artist of the earth. It is significant that Sophia means "wisdom". One who loved reading more than life and placed "the sweetness of words" above military glory, Yaroslav founded the first library in Russia herc In St. Sophia's manuscripts were copied, the finest contemporary works written in Greek were translated, and chronicles were compiled.

Today the cathedral preserved by the state as an ancient monument is visited by about five hundred thousand Soviet and foreign tourists a year.

Remarkably modern-looking head of the Apostle Andrew — done in mosaic nine centuries ago.

The decorations are based mainly on religious motifs, but there are a number devoted to secular themes. And secular really means secular — including dancing, hunting and racing scenes.

St. Sophia's has one of the most valuable collections of eleventh-century decoration in the USSR — frescoes and mosaics, lovingly restored, are picked out by the twentieth-century sun.

"A musician", part of an eleventh-century fresco on secular themes in the northern tower.

A martyr depicted in mosaic by an eleventh-century artist with impressive colour and linear design.

Sharks in the Desert

from the Moscow railway daily GUDOK (The Hooter)

An Uzbek geological expedition has discovered a large cemetery of petrified fish in the Kyzylkum Desert. The depth of the deposit varies from 8 to 20 inches. There are both black and white bones and even some sharks' teeth. Scientists say that millions of years ago this was a sea.

It is not yet clear what killed the fish. Some say the salt concentration in the water increased greatly; others think lack of oxygen was the reason.

This fish cemetery is a valuable find not only for sciense, but also for industry. The remains are rich in phosphorus anhydride and can be used to make mineral fertilizer.

Uzbek geologists say they hope to find rich deposits of phosphorites in a number of areas in Central Asia which were once covered by seas.

Stuffed Camel à la carte

from the newspaper TRUD

It is not a taxidermist you need to stuff this camel, but a cook. Said to be a staple item on a Bedouin wedding menu, it requires a certain amount of patience and time to prepare. First stuff a fish with eggs. The fish is then baked inside a chicken. The chicken in turn becomes the stuffing for a whole sheep roasted on a spit. The roasted sheep is sewn up inside a camel, which is baked in a specially constructed oven.

A Snake Is a Snake Is a Snake

from LESNAYA PROMYSHLENNOST

Half a million people in the world are annually bitten by snakes. Each year, 40,000 die of snake bite, including 15,000 in India alone.

Did You Know That...

from the newspaper TRUD

the scent of the cactus carries further than that of any other plant — some three-quarters of a mile.

a four-year-old child asks an average of 437 questions a day.

Europe has the "oldest" population in the world — 9.8 per cent over the age of 65. By the year 2000, it is expected that the figure will rise to 13.1percent.

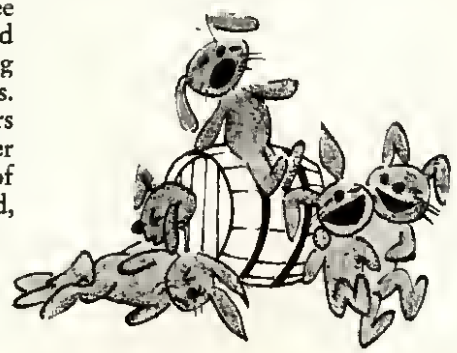
Flying Sheep

from the newspaper IZVESTIA

Twice a year, 20,000 sheep are transported by air over the snow-capped mountains of Kirghizia. In summer they are flown to the alpine pastures in the Chatkal Plateau and in autumn they are once more put aboard a plane for the return trip home. In the past, the arduous journey over the narrow, winding mountain paths took 12 days. Today, the one hour flight is not only convenient, but also economic.

Hare-brained Attack

One night the workers of a distillery in Leningrad heard a noise in the yard and went out to see what was going on. They found a score of white hares dancing a jig and executing somersaults. When the hares saw the workers they charged at them. It later turned out that a barrel of spirits, left uncovered in the yard, was the source of the hares' synthetic courage.



Big-time Jazz

Text by Vladimir Mikhailov
Photographs by Nikolai Rakhmanov

The first time jazz fans heard the Moscow Radio and Television Variety Orchestra was in May 1966, at the Third Moscow Jazz Festival.

Muscovites were happy to see some old faces among the instrumentalists, youngsters who had won prizes at jazz festivals in Moscow, Leningrad, Tallinn and Novosibirsk. Among them were Georgi Garanyan and Alexei Zubov, saxophones, Konstantin Bakholdin, trombone, Boris Frumkin, piano, Adolf Satanovsky, bass, and Alexander Gorelkin, drums. But hardly anyone knew the conductor, Vadim Lyudvikovsky.

When Lyudvikovsky was in his third year at school he went backstage after a concert given by Leonid Utyosov and his band, and asked: "How many saxophones have you in the band?" In another ten years or so, by then a well-known pianist who had arranged many instrumental works for various combinations, he became the conductor

and musical director of the Ulyosov band. Now he was the one who decided how many saxophones the band had. After graduating from the Leningrad Conservatoire in 1949, Lyudvikovsky became increasingly interested in composing and began to build up his own band. At the Jazz Festival in May 1966, two months after its formation, the band made its debut. "The Moscow Radio and Television Orchestra has everything it takes to become a jazz combination of the highest order," one reviewer forecast after its first performance. These words were later justified. Here are two comments of particular value because they come from established professionals

In 1967 the orchestra played at Jazz Jamboree-67, in Warsaw, and at an international jazz festival in Prague. At the latter there developed keen competition between the leading jazz orchestras of Europe. There was the European Jazz Orchestra of Kenny Clark and France Boland, Kurt Edelhagen's band from West Germany, Max Greger's band from West Berlin, the Czech Radio and Television Orchestra, and the Brno Jazz Orchestra conducted by Gustav Brom. Lyudvikovsky's band won first prize, and the sensation of the festival was the performance given by five of its members — the Crescendo Quintet, consisting of Zubov, Bakholdin, Frumkin, Satanovsky and Gorelkin, mentioned earlier. Their performance of Alexei Zubov's arrangement of an old Russian folk song brought delighted applause from an audience who found it a refreshing change from countless interpretations of blues.

"This is my fifth tour of the Soviet Union but it is the first time I have come across a band that is up to the best European standards." (George Marjanović, Yugoslavia).

"We have been performing all over Europe for many years. We have heard and worked with many fine orchestras but we can say that the Radio and Television Orchestra of the USSR is the topsl" (Bianca and Tadeusz Hołupniczak, Poland).

So within a year Lyudvikovsky's orchestra rose like a meteor to the position of best band in Europe. Two and a half years later, it still holds the title, and thanks to Lyudvikovsky's musical sense, ability and keen organisational the orchestra also has a reputation for talent-spotting and pioneering with new works — young unknown performers seem to gravitate to it and leading composers entrust their best works to it.

As the resident orchestra of radio and television, Lyudvikovsky's ensemble has a regular audience which is unique in its vastness. This is excellent, of course, but it also imposes certain responsibilities. How does Lyudvikovsky see them?

"First," he says, "we have to popularise Soviet jazz works. Then we ourselves should be more than performers — we must compose jazz ourselves, and we are in fact doing this. Lastly, we must introduce to listeners the best of the jazz coming from other countries. And in all this we have to maintain the highest possible professional standards."

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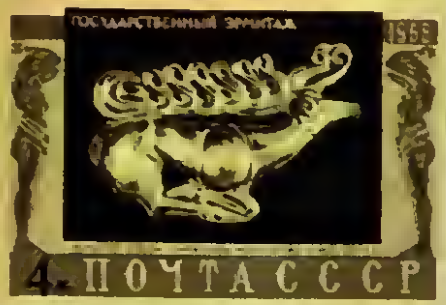


Treasures of the Hermitage

The Leningrad Hermitage, which contains an extremely rich collection of outstanding works of all schools of painting, including canvases by Raphael, Leonardo da Vinci, Titian, and Rubens, is rightly considered one of the finest art museums in the world. Apart from paintings by famous West European artists, it has unique examples of ancient cultures.

A series of five large-format stamps (Nos. 3483—3487) has been brought out in the Soviet Union devoted to the treasures of the Hermitage. They are printed by a combined engraving and offset method on coloured glazed paper. The designs are by Boris Zhitkov.

4 kopecks. "Golden Deer" — chased gold plate which decorated a Scythian shield. Sixth century B.C. Engraving on steel. Combed perforations 12 ½ : 12.

6 kopecks. Ancient Iranian silver pitcher, fifth-sixth century A.D. The gilt vessel is decorated with an image of a mythical dog-bird. Engraving on steel. Linear perforations 12 ½.

10 kopecks. Statue of Voltaire, the work of his contemporary Jean-Antoine Goudon. 1781. Engraving on steel. Linear perforations 12 ½.

12 kopecks. A large malachite vase made in 1840 by Urals craftsmen. Engraving on steel. Linear perforations 12 ½.

16 kopecks. "Lute Player", painted by Caravaggio, an Italian master, in about 1595. Engraving on steel. Linear perforations 12 ½.

Metallostone

by Anatoli BOGATYRYOV

from the magazine IZOBRETATEL I RATSIONALIZATOR (Inventor and Innovator)

Anatoli Motulevich shows us a small machine part: anyone looking at the shiny yellow surface would swear it was made of brass.

"The colour mostly comes from stone, not metal," the engineer remarks. "The material is only 15 per cent metal — the rest is stone."

He points to another machine part which looks more like lead. Beside it on the bench is a small building block with a snow-white facing. All these objects are "metallostone".

Many different applications have been found for the new material. In construction work it is used for making light-weight piles and carrying elements. In the engineering industry it is employed for machine-tool beds, giant wheels, big castings and reactors for chemical plants. It also makes good railway sleepers, pit props and so on.

Metallostone shapes, large and small, are "baked" in refractory moulds. The front can be faced with a long-lasting coating, protective and ornamental at the same time. By making a concave pattern on the mould, a bas-relief can be obtained which will last forever, even in the most rigorous climate.

Strictly speaking, of course, ordinary ferroconcrete is also metal-stone but in this case the metal and the concrete can be separated. The metal is only the skeleton to be covered with concrete muscles. In Motulevich's metallostone the components are inseparable.

Ferroconcrete possesses no new properties not found in the component materials. A ferroconcrete block is not plastic; it cannot be bent — the concrete will crumble and the iron rods may break. Metallostone will not come apart. The basalt granules are pressed into the metal, as it were.

In the steel-basalt and aluminium-basalt invented by Motulevich it is possible to make out particles of stone firmly set in metal. It is this structure which accounts for the new properties of the extraordinary material.

Metallostone combines the advantages of both components: it possesses the strength, elasticity and durability of the one, and the hardness, chemical stability and cheapness of the other.

Parts are made from metallostone by a method resembling

casting. While the melt is cooling, the metal compresses the particles of stone with tremendous force. The metal crystals in the structural grains are deformed and slip along the faces of the stone granules, the metal bonds being strengthened. The properties of the stone are also markedly changed. Ordinarily stone is rather brittle but when held in a strong metal grip it has nowhere to expand. Thus, the tensile strength of the metal and the compression strength of the stone increase. The tensile strength of metallostone is 30 per cent higher than that of the metal alone, while its compression strength exceeds 7 tons per sq.cm.

When testing the new material under immense pressure the personnel kept behind strong armour shields: when stone "fails", that is, gives way, in sucb tests the result is something like an explosion. But there was no explosion this time. Under the tremendous pressure the cylindrical metallostone specimens slowly swelled and crept like plasticine. But the new material's great strength is not its only merit. The main advantage is its increased dependability. There is no accident hazard when metallostone structures are used. In the worst event they are deformed.

Metallostone is not merely a mechanical mixture — it is more like an alloy. Under the action of high temperature and other factors the metal and stone enter into a complicated chemical reaction. Parts made from the new material can be joined by welding, which is impossible with stone alone. The alloy is resistant to corrosive agents. Metallostone constructions can be manufactured with preset characteristics.

Enthusiasts belive metallostone will soon oust ferroconcrete because of its greater strength and durability. Metallostone will also be cheaper since metal consumption will be less. Using alumogranite, say, in place of aluminium, will give a saving of 80 per cent of the metal.

MEN ON THE MOON

From an interview given by Dr. Konstantin Feoktistov, Soviet astronaut, to the newspaper IZVESTIA, the day after the US astronauts, Neil Armstrong and Edwin Aldrin, walked the Moon's surface in July.

How do you see the flight of Apollo 11?

A magnificent achievement!

The Apollo fight represents the culmination of ten years' effort by great teams of American scientists and engineers working on the creation of a space-rocket complex that would land men on the Moon.

I should particularly like to remark upon the calm and confident way all the operations in the flight programme were carried out by the courageous crew of the Apollo 11.

Man has made his first trip to the Moon!

Footprints at last on lunar surface. And here are the men who did it.

What part of the programme do you consider to have been the most difficult?

The most crucial stage, to my mind, was the touch-down on the Moon. This manoeuvre could not

have been simulated with precision on the Eartb. It should be remembered that it had to be carried out in a vacuum, and apart from that, the module had to be brought down on an uneven surface with comparatively low stability. There was another complicating factor. When the module had only a few more yards to go, the stream of gases from the engine began to toss up rocks from the Moon's surface. Furthermore, as it bounced back again from the surface that gas stream could have had nasty repercussions for the module. And the reproduction of this process in terrestrial conditions was a practical impossibility. In this case, the first experiment was carried out in the course of this very piloted flight. In my view tbis was the greatest hazard.

Happily, all misgivings proved groundless.

Apart from that, the crew of the module, and in particular the pilot, had within a very short time to size up the terraine on which the landing was to take place, to pick the most level spot, and to direct the module to it. The astronauts took about a minute over their choice of site. Then at a signal from the probes fitted to each of the module's four legs, the pilot switched off the engine when the module was about four and a half feet from the surface.

Armstrong and Aldrin required speedy reactions and considerable presence of mind to perform all these manoeuvres.

In principle, the whole landing process could have been automated, but the American engineers and scientists put the responsibility for these intricate operations onto the astronauts. The crew certainly made a brilliant job of the landing.

How do you evaluate the Moon landing?

There is no doubt that it is a major landmark in the development of astronautics. First, the imagination cannot help being stirred by the very fact that human beings bave made their first landing on another celestial body. What was recently fantasy has become reality. Man has set foot on the Moon, has been able to "feel" it for himself, to see what it looks like at close quarters with his own eyes, and to walk about it. I believe that the natural striving for self-affirmation is present not only in individuals but in groups, in mankind as a whole. The Moon landing is an act of self-affirmation of all mankind. The success of the operation enables human beings to contemplate with greater confidence the complex long-term problems awaiting solution by man on the way to the conquest of space, to the further exploration of the Solar system.

But the landing is not only of significance from the emotional point of view, of course. I should like to emphasise its tecbnical and scientific value. During work on the Apollo programme an extremely complex space-rocket system was created and new instruments, materials and technological processes were devised. This is all of great importance botb for the creation of further complicated space-rocket systems and for the development of technology used in various branches of ordinary terrestrial industry.

As regards the scientific importance of man's emergence upon the lunar surface, the main thing here was the opportunity to collect rock samples from the Moon's surface and deliver them to Earth. A detailed analysis of these samples will, it is hoped, bring substantial clarification to our concept of the origin of the Solar system's planets. In addition to terrestrial minerals, man now has samples of lunar rocks. The fact that it is now possible to gather experimental data about the Solar system from two of its points is of tremendous importance for constructing a more reliable theory of the evolution of the Solar system in particular, and of stellar systems in general.

In addition to collecting rock samples, the astronauts set up several scientific instruments on the Moon's surface.

We are delighted at the success of the American astronauts. It is the realisation of a dream cherished by many. And I take advantage of this occasion to extend congratulations to Neil Armstrong and Edwin Aldrin, and also to Michael Collins. I wish them the successful fulfilment of further flight programmes and safe returns to Eartb. Let us hope that they will tell Earth-dwellers much of interest about their visit to the Moon.

Smile with Sputnik

Secrets of the sea

Fishermen on the trawler Mirny recently found a barnacle-encrusted bottle in their net along with the fish. An interesting feature of the find is that when they opened it there was nothing inside. It all goes to show that the sea guards its secrets jealously.

Service with a smile

Irina Troshina has been awarded first prize in the "Most Courteous Salesgirl" Competition.

Irina kept her mouth tightly shut throughout the competition period.

Noise-abatement campaign

A step forward has been made in the fight against noise at the Apparat Factory, where the noisiest machine has been made the responsibility of three women. Now the machine cannot be heard at all.

Do-it-yourself week

When your button comes off, take a needle, thread it, tie a knot in the end of the cotton, mark the site of the button with chalk and hand the whole enterprise over to your wife.

A lucky find

I. Zherebtsov found a horseshoe in his soup while dining in the works canteen. Sure enough, the next day he won a car in the State Lottery.

Duty is skin deep

A dermatologist was once asked why he had chosen that particular field. He replied that he had been influenced by three factors: "My patients never rouse me from my bed in the middle of the night, they never die, and they never get well."

Gastronomic view

Artist's friend: "Such realism! It really makes my mouth water!"

Artist: "Does the sunset usually have that effect on you?"

Artist's friend: "God Almighty — I thought it was an omelette."

Crash and cash

Driving instructor: "Now tell me what would you do if your brakes suddenly failed?"

Learner: "I'd try to crash into the cheapest thing I could see."

Put it in your pipe, mom

"If you smoke you'll never grow up."

"But grandpa smokes, and he's 70!"

"Ah, but if he were a non-smoker he'd have been 80 long ago by now!"

Hot stuff

"Mum, Mum! Can I go and watch the eclipse of the sun? All the other boys are going to!"

"All right! But mind you don't go too near!"

Up with the Joneses

"Please accept my profoundest condolences," a man exclaimed on meeting a friend in the street. "I've bought my wife a new fur coat."

"What's that got to do with me?"

"She's visiting your wife today."

Hard lines for lions

"Who's that imposing looking woman?"

"She used to be a circus artist. Sang in the lions' cage."

"Why did she stop?"

"The Society for the Prevention of Cruelty to Animals stepped in."

On the safe side

Diogenes, seeing that an archer was an extremely poor marksman, stationed himself right in front of the target.

"Why on earth are you doing that?" someone asked.

"To be certain he doesn't hit me by accident."

Ignorance is bliss

A young man used to pester Voltaire with questions, and at last, deciding that he could bear no more, Voltaire said each time they met: "Good morning. No, I don't know the answer to whatever you're about to ask me."

* * *

Photographer: "Now, my little man, smile and watch the birdie!"

Boy: "Don't gimme that stuff! Why don't you concentrate on your light meter for the right exposure or you'll spoil the film."

Ploughman Number One

by Victor BUKHANOV

from the youth monthly YUNOST

He does not know the newest name in poetry, nor who wrote the music of "La Traviata". When he talks to a journalist he is awkward and when he retells the plot of a novel he has just read he sounds naive.

But he knows how to plough land. He does it so well that when you finish reading this story you will, I am sure, respect him. Because Jonas Kazakevičius is not an ordinary tractor-driver. He is Ploughman Number One, the best in the country.

The Cost of One Acre of Ploughland

To get an idea what it is like for a ballerina to do 32 fouettés, try standing on one foot on tiptoe for a minute. Before writing a story about a pilot, go up in a small plane and have the flyer put it through a few loops and rolls. It would certainly be unethical to write about a toothache if you have never suffered the excruciating pain yourself.

Good rules for journalists.

So it was that one fine morning I climbed into the cabin of a DT-54 tractor along with Jonas Kazakevičius, the top ploughman in the country.

When you are driving down a country road and see a tractor out in the fields, the work seems peaceful and idyllic. The ground looks smooth and even and the distant buzz sounds like a swarm of bees. When you are inside a tractor, the buzz becomes a deafening roar. We went pitching and rattling over the ground and any ideas I had of making notes went out of the window. Dust obscured the sun. I took off my dark glasses and shoved them into my pocket.

The field was new and poorly cultivated. We were harrowing across the ploughing in order to make the ground at least a bit more level. The tractor was lurching like a ship on a swelling sea. But aboard a ship you can find some place to lie down. Here you feel as though you are rattling around in a hot tin box. Five hours of incessant jolting.

Then we stopped. The roar of the engine died down. Dust settled on the ground. A skylark quivered overhead, pinned to the sky with the sharp needle of its own trill. The cautious young shoots on the trees tentatively explored the warm spring air. The field smelled of ammonia.

"Do you want a drink of water?" Jonas asked.

He went to a well and brought back a can of water. I can still feel its wonderful taste in my mouth. I did not climb back into the cabin: my body was aching and my spine was stiff with strain. I stretched out on the grass and watched the tractor massage the clotty brown field. It was 2,000 feet there, a turn, and 2,000 feet back. There, a turn, back. There... It was a monotonous and mesmerizing process, resembling the passes of a hypnotist.

The sun was setting. I made a sign to Jonas and climbed back into his tractor. Again 2,000 feet there, a turn, and 2,000 feet back. Dusk crept up on us. Jonas switched on the lights.

"Are you going to work much longer?" I shouted.

"Till I finish!" he shouted back.

Jonas "finished" at 11 p.m. He had spent 17 hours in his tractor, with only two short breaks for snacks.

"Do you usually have such work schedules, or is it an urgent job?" I asked.

"Neither," Jonas replied. "It's the weather. Tomorrow they'll bring phosphates."

At night I saw the soil in my dreams.

But at 6 a.m. we were already moving in Jonas' snorting DT along the soft white road that led from the estate of the farm section called Lipy (Lime Trees). The other three sections are called Poplars, Birches and Maples. The job was to harrow a field on which an oats and lentil mixture was to be sown. The field was a large one, well-prepared since autumn and very smooth.

As Goethe wrote, the consummation of skill is when everything goes well and simply; in distinction from complete lack of skill when everything goes badly and with difficulty. Jonas works simply. He is sparing in his movements as in his words. He does not turn his head to make sure that his harrow does not trespass into the ploughed part of the field or leaves ground unploughed — he only squints his eyes right or left to make corrections. He does not pull the friction-clutches. He barely touches them. His hands lie in his lap for long periods — otherwise they would not be able to work the whole day.

The strip Jonas had covered was impeccable, as if it had been traced with a drawing-pen on a sheet of Whatman and not with a harrow on the ground. This is not a requirement of aesthetics. It is a requirement of economy. Previously, I had not realised that if a field is ploughed beautifully it is also ploughed well; while if it looks ugly the job has been bungled, and it will soon be overgrown with weeds.

A well-ploughed field looks beautiful: layer sticks to layer and the ends of the furrows are done carefully. The plough is a double-edged implement: it can make the field look wonderful but it can also make it unsightly.

At noon, as I had requested, we exchanged seats and I handled his tractor. Our DT jerked and moved left. I pulled the right-hand clutch toward myself. The tractor turned right. Left. Right... Straight ahead.

I drove the tractor carefully, bypassing the boulders. I knew that, squeezed out by cold weather, they slowly popped up on the land of Lithuania every

year . . . bubbles of stone pushed up by the living land.

A city dweller, I was moved by the awakening of spring and the sight of the bare, trusting earth. I was not ashamed of that feeling — I was ashamed to realise that it swept me far too seldom.

Hours went by. The diffident Baltic sun had now turned tropical fierce. A red strip of sunburn emerged on my forehead. Red dust was irritating my nose and tbroat and a red blister appeared on my palm. Toward five o'clock the field was harrowed. (Jonas would have completed the job an hour and a half earlier.)

"The Golden Plough" — awarded to Jonas Kazakevičius at the first all-Soviet contest of ploughmen in 1967.

What I had done did not bear the slightest resemblance to the straight notepaper lines of Kazakevičius. My apologies to the management of Dotnovo farm, but I did the best I could. And, most important, I learned the cost of an acre of ploughland. Or, to be more exact, I felt that some day I might learn it.

To do so, one must plough in the autumn, repair and adjust tractors throughout the winter, harrow the field, fertilize it with manure and phosphates in the spring, do all the standard field oprations in the summer, take in the crops with a combine harvester in August, turn up the soil in September and start the whole process all over again.

The First, the Best

"He's a real ploughman!" That was said about Jonas by Alexander Popov, of the USSR Ministry of Agriculture, chairman of the board of referees at the 1967 competition of ploughmen.

Popov explained that by this term he did not only mean professional skill "in individual elements of agricultural work". A ploughman, he believes, is a man who is an able cultivator of the soil, a hard worker, a breadwinner by profession and nature. In other words, a ploughman is both a position and an attitude to life.

Jonas Kazakevičius lives up to this definition of a plougbman. He is a tractor-driver, harvester-driver, lorry-driver and maintenance man. All the year round he cultivates the soil or handles soil-cultivating machines. As befits a real ploughman, he is generous and kind.

Let me tell now a story which has to do with the title of Ploughman Number One.

In 1966 Jonas first became champion ploughman of Lithuania.

A year later he went to the international competition in Erfurt, where he was ninth. In Germany he had to drive a wheel-tractor, while all his life he had been driving a caterpillar-tractor. Predictably, he offered no excuses. "I learned a lot there," was all he said.

Back at home, Jonas retained his title of Lithuania's best ploughman by winning another republican competition. In the autumn of 1967, when the first all-Union contest of ploughmen was organised, Jonas took part.

He came to Moscow and found himself among some two dozen top ploughmen from many parts of the Soviet Union. At this point I will take a moment to explain what it means to be a good ploughman.

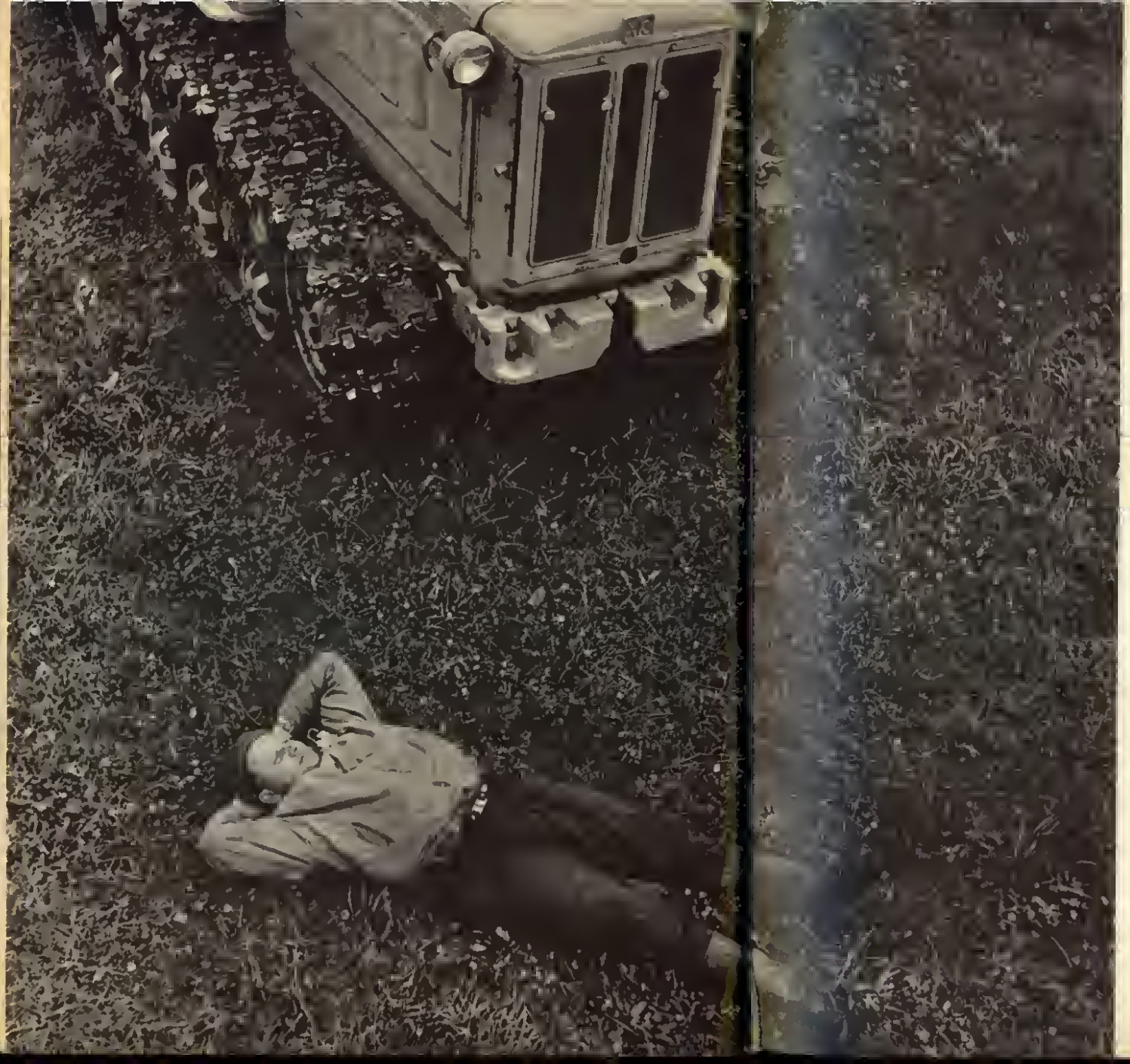
The layman erroneously thinks that the deeper the furrow the better. Not necessarily so. By ploughing 10 inches deep in Lithuania or northern Byelorussia, say, you will push the fertile layer underneath, while leaving barren soil on top. Like art, ploughing calls for a sense of proportion.

The important thing is to be able to turn the layer correctly. According to the rules, the sod cover must be turned inside — together with the perennial weeds. If the weeds are not turned into the soil properly they will sprout before it gets dried for the sowing.

Straight lines are important; a good ploughman is identified by his first furrow, which he makes as straight as the crow flies. The depth of ploughing must conform to within 0.4 of an inch. The finer the soil is crushed the better, thougb the surface of the field must not be turned into a flat surface. There are some 15 criteria to good ploughing. But after all, I am not writing a manual. I am simply trying to explain why some ploughmen were aghast when they learned how their work would be appraised.

Now imagine the pre-contest atmosphere, with instructors, trainers and fans in abundance; the excitement of the spectators; the contestants' urge to win, the tactics of struggle being secretly discussed and final advice given in a whisper so that an opponent should not overhear.

Kazakevičius spoiled the whole show. He saw that some of his rivals really felt lost and got on his tractor and made an exhibition run. Then a second and



a third. He did everything, from tracing the crests and fixing the plough to finishing the edges of the ploughed field.

Then they all went to the hostel, where till 3 a.m. on this last night before the contest Jonas answered questions put by his rivals. When he found his Russian failing he made sketches to illustrate his ideas.

The next day Jonas placed second, losing by one and a half points to Saar Aarne of Estonia. After a discussion, the board of referees issued a statement which paid tribute to Aarne's skill but pointed out that he had never shown such results regularly in Estonia, while Jonas had consistent good work to his credit in Lithuania. What to Saar was a one-time super-effort was to Jonas daily practice. Therefore, for the sake of justice, Jonas Kazakevičius was named Ploughman Number One.

The excitement of competition is weakened by daily contact with the soil. The soil teaches man thoroughness. Ploughman Jonas obviously wanted to come out on top, but he also wanted the land to win. After all, they were competing on a real field of a real state farm near Moscow!

Narrow Specialisation

I intentionally began my story by listing what Kazakevičius does not know and cannot do. I do not want the reader to

think that my hero is more complex than he really is. At the same time, man's erudition should not be equated to his culture.

Jonas grew up in a large peasant family. He had only eight years of schooling before starting work. But he continued his studies at home — his fellow-villagers came to know of this when he took his exams as a correspondence student for the entire course of a school for farm mechanics. He is a man who believes learning to be a never-ending process. He improves his skills in his chosen area, the cultivation of soil and the maintenance of its fertility. The **Farmers' Newspaper** on his desk is a mark of his consistency. After all, nobody reproaches a scientist for narrow specialisation. Specialisation provides wheels to success.

I heard Jonas address a conference of Lithuania's farm workers. Naturally, he spoke in his native tongue so I understood nothing, but I felt he would hardly make a Demosthenes. Then his speech was translated for me: it was simple, brief and dynamic. And once again I thought that although his schooling had been limited to eight years Jonas was a cultured person.

What makes me think so is, above all, his attitude to his work. Unavoidably, the ploughman's daily job is still mainly toil and monotony. Jonas belongs to the category of people to whom dull, wearying duties become absorbing, creative occupations. He does his job well but each time not well enough to feel complete satisfaction. The attitude of a real artist!

"Besides, he is devilishly patient," I was told. It is not accidental that precisely this trait of his was singled out. As an old maxim goes, patience is a veritable talent.

Jonas and I sat at the side of a dusty road, munching bread and salt beef. A grey telegraph post was humming behind us. A shrivelled tree, with long cracks running down it, sang like a cello. Then the wind changed and the post replied with its bumble-bee humming and the chattering of a Morse message.

"Will there be a ploughing competition this year?"

"Yes," Jonas said. "In Estonia."

"Will you take part?"

"I don't know. I have to hold first place on my farm, then in my district and in my republic. Only then can I enter the national competition."

"What sense do you see in these contests, Jones? Do they give any stimulus to the ploughmen? Do they raise the prestige of your job?"

"Not that. Their results show how the ploughing is done in different places, so that we know where there is a high level of ploughing and where it is low. Last year showed that the ploughing was good in the Stavropol Territory, the Volgograd Region, Lithuania and Estonia, and bad in Central Asia and Transcaucasia. That's part of economic geography — you see?"

I nodded. In the Ministry of Agriculture in Moscow I heard that the winner of the USSR ploughmen's competition would enter a world competition. So far, my country is not a member of the World Association of Ploughmen. This is absurd. A country with a hammer and sickle on its national emblem must have more than sports champions in the international arena.

By suddenly beating his opposite number in Australia a Soviet sheep-shearer would create as much of a sensation as the best ski-jumper at the Olympics. We involuntarily display snobbery in recognising the face of a budding tenor or a TV announcer while the face of our country's best ploughman evokes no response. There should be no famous professions or jobs. Only skill and mastery should determine fame.

Jonas crawled into his tractor and I went to the central estate of the Dotnovo farm. There, amid centuries-old trees, gleams a pond with beautiful swans, and a blue-and-white sparkling swan palace with stained glass windows.

Today is Saturday, but Jonas is at work.

Tomorrow Dotnovo will have its horse races, which Jonas will have to miss as well. Naturally, I told myself, in spring a day feeds a year in the countryside. Yet the thought that I would watch the races while Jonas worked made me feel uncomfortable — 2,000 feet there, a turn, and 2,000 feet back . . .

Then I began to dream of how Jonas would win the world championship of ploughmen and rise to the pedestal of honour — redfaced like a seaman, with light blue eyes and tousled chestnut hair. A handsome lad, sturdy and strong.

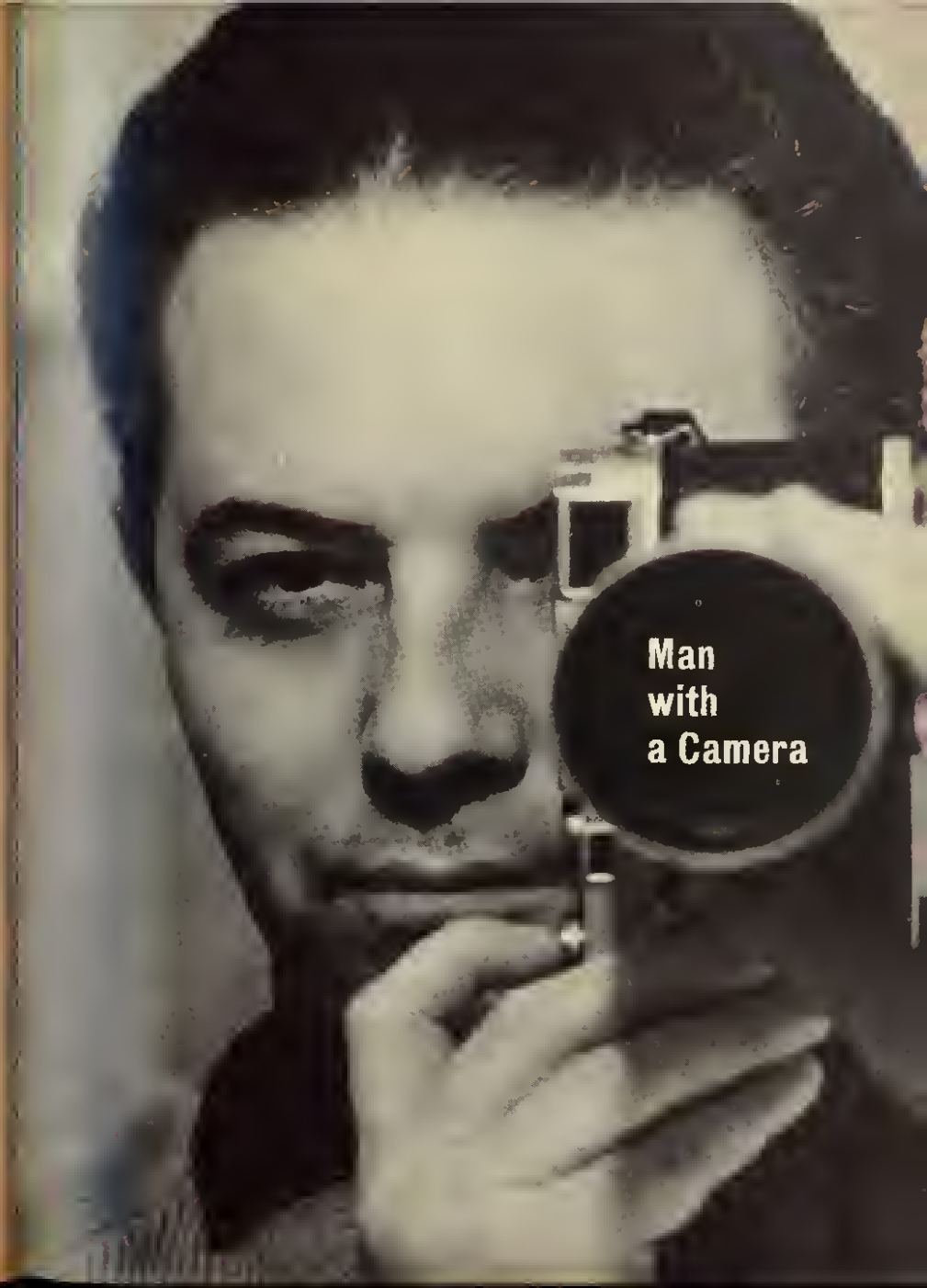
Suddenly I regretted not having met his two sons: Jonas had sent them for the summer with his wife to visit relatives in town. They must be handsome boys: sturdy and dependable, as befits the sons of a ploughman.

Although he was born in Odessa 37 years ago, Leonid Bergoltsev regards himself as a real Muscovite, having moved here at the age of three. In 1957 be graduated as a mechanical engineer. "That was the first and last day of my engineering career," he says.

While he was still a student, Bergoltsev became a professional photograpber, much of his work being published in magazines and newspapers. In 1958 he went onto the staff of the magazine *Soviet Union*.

Over the next 11 years he was awarded 26 medals and diplomas at international exhibitions. In 1964 he accompanied his own exhibition to Poland, and this year he will have an exhibition in Japan.

"I like photographing people most of all," he says, "especially when they are unaware of the camera. I am not fond of colour photography, and I only use colour when the editor-in-chief insists. I consider colour an alien element in a photograph. That probably means that I shall never become an editor-in-chief myself. Well, that's all for the best: I shall simply go on taking photographs."



Bergoltsev groups these three photographs under the title "Women's Eyes".

(see overleaf)

◀ "Bomb v. Ice."

"Dancing for Joy." ▲

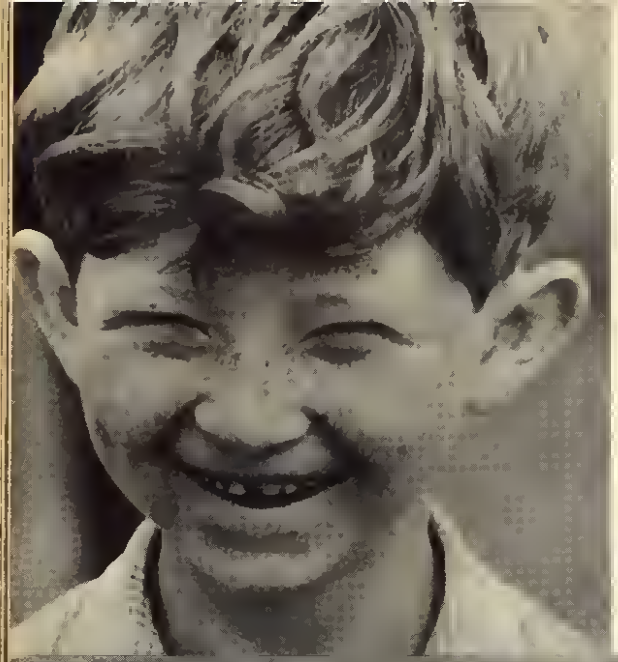
"Test for Stability." ▼

"Girls."

"Trio from Kirghizia."

"Triplets Yuri, Gherman and John, named after the first cosmonauts."

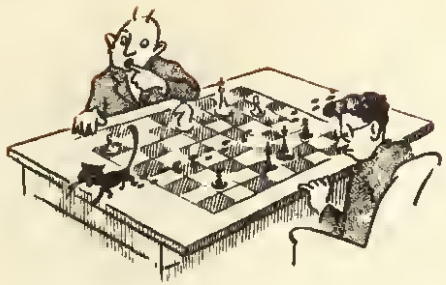
"That Individual Touch."



"Young Gennadi."

"To Each His Own Truth."

"Where Is She, After all?"

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The Moscow Conference

At the Conference of Communist and Workers' Parties held in Moscow from June 5 to 17, 300 representatives of 75 parties discussed some of the most vital questions of our time.

Here we publish an abridged version of an article on the Conference which was published in the magazine INTERNATIONAL AFFAIRS.

The view was expressed by participants that never before had the preparations for a meeting of this kind been so thorough, or been carried out on such a collective, equal and democratic basis.

There was the same atmosphere of equality and democracy at the Conference, where views were exchanged in comradely fashion on major current problems. There were, of course, controversial questions, and these were subjected to the most detailed analysis. Efforts were made to find solutions which would make for a strengthening of unity and solidarity in the ranks of Communists. Differences were discussed in a friendly, businesslike manner.

The document adopted at the Conference — "Tasks at the Present Stage of the Struggle against Imperialism and United Action of the Communist and Workers' Parties and All Anti-Imperialist Forces" — gave a searching class analysis of the main problems of today, and brought clarity to the question of how to carry the anti-imperialist fight further. It expressed the view that the principal lines of world development continued to be governed by the activity of the forces of revolution and socialism, of peace and national liberation.

For the Communist and Workers' Parties the fight against imperialism is inseparable from the struggle for their ultimate class aims, for the achievement of political power by the working class in alliance with all other sections of working people — that is, it is inseparable from the fight for socialism. As imperialism is more and more revealing itself as a force which is inimical to social progress and peace, as it is the chief enemy of all revolutionary liberation movements, it is important to the correct orientation of the anti-imperialist struggle to make a scientific analysis of

modern imperialism, to secure a correct understanding of its essence, to carry out a careful study of the new phenomena and inner processes developing within that system.

The Conference documents and speeches gave an analysis of both the strong and the weak sides of imperialism and also of the dangers with which it threatened mankind. This is of particular importance, for in recent years there have been tendencies on the one hand to exaggerate, and on the other to underestimate, the strength and potentialities of imperialism.

They defined the nature of, and the reasons for, the latest phenomena within present-day imperialism. Many of these are due to the fact that it has to adapt itself to the conditions arising the struggle between the two systems. The growth of socialism, the destruction of the colonial empire and the pressure from the workers' movement are having an increasing effect on the external and internal policies of imperialism.

The monopoly capitalists are endeavouring to avert socio-economic upheavals extremely dangerous to the bourgeois system, and are making certain concessions to the working people. They are concerting their efforts on an international scale, either in the form of economic integration, international monopoly associations or military-political alliances. Imperialism is resorting increasingly to the monopoly and state apparatus to curb spontaneous market fluctuations in the interests of the big monopolies and to make social production more efficient.

At the same time, the world positions of imperialism are continuing to weaken. It is becoming clearer and clearer that it is beyond their power to regain the historical initiative. All the contradictions of the system are growing, its socio-economic antagonisms are deepening, while imperialism's internal instability is on the increase. In a number of countries the very foundations of imperialist power are being subjected to some severe shocks, and there are increasing examples of democratic rights being abolished and of public and economic life being put on a militarised or fascist footing. In such circumstances imperialism is intensifying the fight against world socialism, against the workers' and national-liberation movement.

The participants in the Conference pointed out that the imperialist system was a constant threat to the conditions of life and to the very existence of the people in the capitalist countries; it represented a tremendous menace to the freedom and independence of the people of the former colonies; finally, it represented a threat of world nuclear warfare. Consequently the fight against imperialism took on the character of a truly historical mission.

Congress documents pointed out that the world system of socialism is the leading revolutionary force and a stronghold of the anti-imperialist movement. While world socialism has unquestionable successes to its credit, some difficulties are also encountered in its development. They are not only the difficulties arising from the objective complexities of the process of building socialism and establishing a new type of relations between socialist countries. Many of them are closely connected with the continual efforts of imperialism to put economic, political and ideological pressure on the socialist world.

In their speeches the leaders of Communist Parties in the socialist countries spoke with particular emphasis of the significance of certain generally applicable laws in relation to the building of socialist society, the inevitability of the dictatorship of the proletariat in one form or another throughout the entire period of transition from capitalism to socialism, and the need to constantly strengthen the role of tbe Communist Parties in the construction of socialism and communism.

Distorting the character of relations between the socialist countries, the enemies of socialism have been speaking of a theory of "limited sovereignty". Unfortunately this "theory" has been seized upon even by some people in the Communist movement. There was frank discussion on this point at the Conference and a sharp rebuttal of such views was given by Gustav Husak, First Secretary of the Central Committee of the Communist Party of Czechoslovakia. To ensure their sovereignty, he said, each party and socialist country had to uphold and defend the power or the working class and all working people, and also all the revolutionary gains of the socialist system. In this sense the class content of the sovereignty of the socialist state was inseparably linked with international responsibility to the commonwealth of socialist countries and the international Communist and revolutionary movement.

Great attention was also devoted to an analysis of new phenomena on other decisive sectors of the anti-imperialist fight — in the working-class movement in the capitalist countries and the national-liberation movement. Conference participants spoke of the significant increase in the possibilities of the struggle on these fronts, and of the wider prospects for action by Communists and revolutionary-democratic forces.

The question of the allies of the working class is acquiring particular importance.

In the capitalist countries it is a problem of the relationship of the working class to the peasants and farmers as allies, to the intellectuals and youth, it is a problem of the relationship of Communist and workers' parties with the social democrats. Today favourable pre-requisites are emerging for the uniting of all democratic trends in a political alliance capable of firmly restricting the role of the monopolies in the national economy, ending the power of big capital and carrying through radical political and economic changes that would ensure the most favourable conditions for continuing the fight for socialism.

As regards the countries of Asia, Africa and Latin America, the positions of the peasants, wbo make up the majority of the population, is the central question of the revolutionary process. The creation of a stable alliance between the peasants and the working class — this is how the task on the national liberation sector is formulated.

And of course, the period we are living in demands the fulfilment of the task of cleansing our planet completely of colonialism, destroying the last centres of it, and not allowing its rebirth in new, disguised forms.

The Moscow Conference not only reviewed the successes of the Communists over the past ten years but also concentrated attention on unsolved problems, on new potentialities of the anti-imperialist struggle, and on the difficulties arising in course of this struggle. These difficulties, it was pointed out, also existed within the Communist movement itself, which was living through a complex period of its development.

"We cannot close our eyes to the differences existing today in the Communist movement," L. I. Brezhnev said in his speech, "we cannot pretend they do not exist; these differences are to a great degree the result of the penetration of the Communist movement by revisionist influences of both right and 'left-wing' trends. And these influences make themselves felt by no means only in the sphere of 'pure' theory. Revisionism in theory paves the way for opportunist practice, which is of direct harm to the anti-imperialist struggle."

This was the reason that the representatives of the majority of the parties at the Moscow Conference laid stress in their contributions on the need to intensify the fight against both right and "left-wing" revisionism. They pointed out that a feature held in common by the two types of opportunism was frequent concessions to nationalism, and in some cases a direct transition to nationalist positions.

Most of those who spoke quoted the position adopted by the present leadership of the Chinese Communist Party as an example of what might be the logical end, on the political plane, of an opportunist, nationalist line. The aggressive provocations undertaken by the Maoists against the Soviet Union and the decisions adopted at the Ninth Congress of the Chinese Communist Party have created a new situation in the anti-imperialist struggle, and

the speakers condemned the activity of the Maoist leadership for their complete departure from Marxist-Leninist principles, from proletarian internationalism and for their splitting, anti-Soviet line which had been legalised as official state and Party policy.

The policy of the Mao group is, of course, when taken to its logical conclusion, the most glaring example of anti-Sovietism. Unfortunately, "inspired" by this experience, certain Western propagandists are trying to instil anti-Sovietism in various sectors of the world revolutionary movement, including the Communist ranks.

Enmity and distrust of the Soviet Union are generally implanted by various breeds of opportunist. In most cases this line is advanced on the pretext of developing Lenin's concept of proletarian internationalism, as a concept of some kind of "new internationalism".

Janos Kadar, First Secretary of the Central Committee of the Hungarian Socialist Workers' Party, drew attention to another aspect of this problem. "We often stress," he said, "that all the parties of the international Communist movement and all the countries of the world socialist system are equal. This is really so, and this is a good thing. But lately there has been little said about the fact that although we have equal rights, our responsibilities and burdens are not identical. Even if we take all the proportions into account, then, to be frank, we must declare that the Communist Party of the Soviet Union and the Soviet people, who have equal rights with us and lay no claim to more, bear on their shoulders an incomparably greater responsibility than any of us."

The tone of the Conference was set by the fact that there was principled criticism of all trends and manifestations of anti-Sovietism in the ranks of the Communist movement, with whatever slogans ans theses they might be camouflaged.

The Conference discussed the question of the Lenin centenary celebrations and wholeheartedly approved an Appeal on the Birth Centenary of Vladimir Ilyich Lenin. In it they called on all Communists, all fighters for the socialist transformation of society, all fighters for peace and progress to fittingly honour this historic date of world significance.

Another Appeal adopted was entitled "Independence, Freedom and Peace for Vietnam", and it warmly acclaimed the formation of the Provisional Revolutionary Government of the Republic of South Vietnam. A Call for the Defence of Peace was also adopted, as was a Declaration of Support for the just fight of the Arab people against Israeli aggression. Another declaration expressed solidarity with Communists and democrats waging selfless struggle in difficult conditions against reactionary dictatorships.

Kurchatov, Pioneer of Soviet Atomic Science

by Vassili YEMELYANOV

from the youth monthly YUNOST

For many years the writer was one of the men in charge of Soviet atomic research and he tells the story of the work of Soviet scientific pioneers in this field, recalling the leading part played by Dr. Igor Kurchatov, Yemelyanov himself is a Corresponding Member of the USSR Academy of Sciences.

There were no textbooks on isotopes when I studied physics in the twenties and I had had nothing to do with them in my subsequent work as a metallurgist so my ideas about them were extremely vague when I attended a session of the Soviet Government's Scientific and Technical Council in the autumn of 1945. The subject being discussed was fission of uranium isotopes. I was sitting with my friend Vyacheslav Malyshev, a mechanical engineer and Deputy Chairman of the Council of People's Commissars, listening to a report by Dr. Isaac Kikoin.

"Have you understood anything?" Malyshev whispered. "I can't make head or tail of it."

"Not much," I replied.

As a matter of fact I hadn't understood a word of what Dr. Kikoin was saying myself. He was talking about a new branch of science — isotopes.

In the early nineteen forties the small plant in Norway for heavy water represented the only industrial production in the world that had any bearing on isotopes. What other work on them there was, in a few laboratories, was pure research. Isotopes were of interest only to those few scientists who were investigating the nucleus of the atom.

I knew Malyshev to be a brilliant engineer who readily grasped involved scientific and technological problems so I took heart at his inability to understand the speaker.

A man whose black beard and lively eyes had caught my attention seemed to realise our difficulties.

"Isaac," he asked the speaker, "would you give us details about the process which takes place . . .?"

Dr. Kikoin proceeded to explain things in detail, using analogies to make clearer the involved processes which take place in the gas chamber containing different isotopes.

The bearded man, his eyes on Malyshev and me, smiled, and I realised that his question had not been for himself, but that he had wanted us to understand what the speaker was talking about.

I then learned that he was the scientific director of the entire national research programme on what was then known as the uranium problem. He was Dr. Igor Kurchatov, a young member of the USSR Academy of Sciences.

A few days earlier I had been given a new job which was to lead me in to an entirely new world — atomic research. I would have to tackle scientific problems which were completely new to me.

With a smile Kurchatov told me he knew about my new appointment.

I said I wanted to talk to him about priorities for research projects and asked if we could meet the following day.

After consulting a large notebook he said "Tomorrow . . . I have a lot of engagements . . . Let's make it the day after tomorrow. After all, it's going to be a long conversation. Did you grasp what Dr. Kikoin was saying? . . . This process resembles what happens at the end of a film. The agile people slip out of the cinema sooner than the fat, sluggish ones. We have to create conditions which will hamper the movement of large molecules and help the agile ones."

Some people wondered why Kurchatov, then a young man, had been placed in charge of Soviet atomic research, rather than an older, world famous academician. But Kurchatov's work on the nucleus of the atom had been noted well before the war. As early as 1937 Dr. Abram Ioffe wrote in Izvestia about ". . . extremely interesting experiments on nuclear fission conducted by I. V. Kurchatov and his assistants." He had also earned a reputation as a good organiser known for his energy and other qualities necessary in the head of a research institute. Soviet scientists had been unanimous in naming Kurchatov when asked who should lead the research into the uranium problem. Time has shown how right they were.

* * *

I was accompanied by Valeri Kalinin when I went to have my discussion with Kurchatov. He, too, had been assigned to work in the atomic industry.

Kurchatov's institute was then on the outskirts of Moscow, where some buildings were going up among the pine trees. As Kalinin had been there before I assumed that he knew the way, but it turned out that he had been there at night on the previous occasion and had not noticed where he had stopped.

We decided to ask some children who came running up to the car.

"Boys, there's a research institute somewhere here, can you show us where it is?"

They went into a huddle and I heard one of them whisper: "They must want the place where the atomic bomb is being invented". Children know everything.

"Just drive a bit further till you come to a wicket gate in this fence," they told us. And they were quite right. Soon we were walking upstairs to meet Kurchatov in his laboratory. After exchanging greetings we got straight down to business.

"We have to build large atomic piles," he said. "It will be necessary to organise a number of new ventures," Kurchatov began pacing the room cogitating on our complex tasks.

"Today we shall try to establish priorities. We must have high quality uranium and graphite and heavy water to construct the atomic piles. As a metallurgist," he said, addressing me, "you will have to start work on the refinement of uranium."

We started jotting things down. The list seemed endless. Kurchatov's suggestions and questions went on and on.

Graphite . . . The Soviet Union produced plenty of graphite of industrial standard but for our purposes it had to be free of impurities. At all costs we had to remove the boron. That was when the expression "alien atom" cropped up. We talked of how many "alien atoms" we could tolerate per million "atoms of our own". We thought the limit would be five or six

Top (left to right): Igor Kurchatov (standing) with a high school friend of the same surname, photographed in Simferopol in 1917. Kurchatov in the twenties, when he was working on problems of dielectrics in Leningrad. Kurchatov, leading atomic scientist, in his study. Bottom left: Igor Kurchatov, deputy to the USSR Superme Soviet, meets some of his electors in Sverdlovsk. Right: one of the last photographs taken of Kurchatov.

"aliens" per million. I began to worry about how we could determine such a tolerance and what method we could devise to reduce the boron present to the permissible level.

I looked at Kurchatov and it seemed as if we were engaged in some fantastic adventure. He must have read my mind.

"Five atoms," he said. "We must learn to find them, hook them up and get rid of them. We don't want them and they may spoil everything."

Then it was essential that the graphite be kept absolutely dry. The graphite slugs would have to be covered with something. But how? And who could do this work?

Many questions, all new to me, had to be discussed. We had to build up a completely new industry, unlike any we had known.

Many sections of it would have to rely solely on very recent research, or even on current investigations and theories. It was a new area of science and industry in which every question generated a succession of new ones. It would be like a chain reaction.

* * *

The atomic research programme got under way. Many thousands of people in Moscow and elsewhere were working on it in dozens of institutes. Then a small quantity of plutonium, the metal obtained from uranium by bombardment, came to us from the Radium Institute in Leningrad. Our job was to investigate its properties. The sample was a tiny ball only half a millimetre in diameter.

Kurchatov and I discussed the problem and we decided that we needed someone who had experience of working with small amounts of substances. He suggested people who had worked with platinum, and asked me to get in touch with Dr. Ilya Chernyayev, the leading authority on the platinum group of metals, who at that time was director of the Institute of General and Inorganic Chemistry of the USSR Academy of Sciences.

I rang Chernyayev and he came to see me. I outlined our requirements for research on plutonium, especially its physical properties — melting point, hardness, tensile strength and so on — we wanted to study all the characteristics normally determined for metals and alloys.

The more I said, the gloomier Chernyayev looked. He listened to what I had to say and then asked that the discussion be postponed until the next day. I agreed and we set the time for 10 a.m.

Punctually he arrived the next morning and from his briefcase he took a little box. In it, mounted on black velvet, were four tiny balls of copper, 1.0 mm, 0.8 mm, 0.6 mm and 0.5 mm in diameter respectively. Giving me an angry look Chernyayev said sourly:

"Before handing out a job like this you should have done a bit of thinking. Look at the size of these balls. Working with amounts of metal like these you want me to determine its melting point, its mechanical properties and all its allotropic forms and its microstructure... Once I thought the smallest thing in the world was a mosquito's nose. Now you want me to make a nose dropper for a mosquito!"

We had not noticed that Kurchatov was there, but laughing, he slapped Chernyayev on the shoulder and said:

"That's right, Ilya, you've hit the nail on the head. A nose dropper for a mosquito is just what we need. You're really grasped the problem, so I'm sure you'll cope with it."

Chernyayev's rancour disappeared at once and laughing, too, he said:

"All right. Since it's so essential, I shall."

* * *

We reached the decisive stage in our work. We had to start the manufacture of the isotope uranium-235 which is used in the production of nuclear weapons. We were to obtain it by passing gaseous uranium hexafluoride through a solution which would precipitate the metal in solid form. It was a tricky business for nuclear fission might occur, which, even if it did not lead to an immediate explosion, could mean that we would be irradiated by a powerful flow of neutrons.

I asked Kurchatov for critical mass values and he gave me a figure. On hearing what it was, the engineer who was working with me at this stage suggested that we carry out our experiment in a bunker just to be on the safe side if there were an explosion.

As we worked I thought of all the many small parallel plants we would have to build if we went over from experiments to industrial manufacture... If we could use larger amounts things could be cut down sharply.

"Let's try doubling the amount," I suggested.

So next time we worked with double quantities. The neutron meters did not react; that meant that no nuclear reaction was taking place.

After that we doubled up again and, as before, the meters indicated no reaction. We decided that was enough.

On the following day, back in Moscow, I met an expectant Kurchatov.

"Well, how did it go?" he asked.

"Dr. Kurchatov," I said, "what was the critical mass for our conditions?"

He repeated the figure.

"Perhaps you will increase it?"

"Well, we can double it... Have you tried?"

"It could be still greater?"

"Have you tried?" he repeated.

"We have. We worked with four times the figure you gave."

With a very warm look he said: "The estimated critical mass is ten times as great, but what if we had made an error? I was anxious. Suppose you had tried more and gone over the calculated figure? I know how our people treat estimates. You did try, after all, didn't you!"

Frédéric Joliot-Curie and Igor Kurchatov.

Kurchatov was always concerned about people and though his estimates were precise he took no risks and gave a lower figure for the critical mass just to be on the safe side. There could have been a catastrophe. We were working almost in the dark on an entirely new process. Theory was developing side by side with practical experiments.

* * *

Nineteen forty-nine. A memorable year. The first tests of our atom bomb. We were all anxious, unsure if we were on the right track. We were creating something we had never handled before. We had to produce plutonium . . . We'd done it, but was it really plutonium?

Five years of work involving many thousands of people engaged in atomic research and the investment of countless millions of roubles . . . all the scientists and indeed the whole country tense . . . Suppose the bomb failed to explode?

The cold war was at its height. There were many articles in the press of the United States threatening the Soviet Union, many appeals by some US senators to drop the atom bomb on our country before we could make our own.

Would our bomb explode? This was the question foremost in the mind of each of us. How much greater was the strain on Kurchatov, although he showed no sign of it.

Finally the test was made and an artificial sun and a mushroom cloud rose over the testing ground. The industrial installations, houses, bridges, military equipment, tanks, aircraft, guns, locomotives and railway trucks, built specially for the test, were destroyed or severely damaged . . . Our country had obtained a powerful weapon. Kurchatov, who was at the command post, broke down for a moment . . . but he quickly pulled himself together and soon regained his usual self-control, energy and briskness.

The speed with which the Soviet Union had produced its own atomic weapons staggered the world. Western estimates had been that it would take us up to twenty years. That was wishful thinking. Actually our success was not all that sensational, but the USA tried to ignore the contribution Soviet scientists had made to unravelling the mystery of the atomic structure. Our scientists had made a tremendous contribution to the cause of harnessing atomic energy.

The war with Nazi Germany had put a brake on Soviet atomic and nuclear research, but it had not stopped it. Our scientists envisaged the huge potential of the use of atomic energy, certainly in weapons, but above all they had been striving to put the atom at the service of peace.

It was the tragedy of Hiroshima and Nagasaki and the American threats of thermo-

nuclear war which forced Soviet scientists to channel their knowledge and experience into the creation of atomic and later thermonuclear weapons, and within a relatively short time we had first an atom bomb and then a vast nuclear shield.

The successful explosion of the bomb was the culmination of our work. After that it was a matter of fairly routine improvement of the production process. That was not work for Kurchatov. His mind was already on new scientific problems.

Work on new atomic reactors brought with it new ideas in physics. Once the problem of nuclear fission had been solved the question of thermonuclear synthesis was on the agenda. At first it would be uncontrolled synthesis, but Kurchatov was already thinking about controlled thermonuclear synthesis.

After our successful test on the A-bomb we worked quickly on the hydrogen bomb, and Kurchatov was really brilliant there. He worked intensively on ingenious methods of solving that extremely complex problem.

Instead of heavy water the hydrogen bomb required heavy hydrogen. Production here was just as difficult and involved and required as many auxiliary industries as did the light isotopes of uranium used in the atom bomb. Our success in this field, too, is history now. The Americans were first with the fission bomb, but we led the way with the fusion bomb.

The menace of thermonuclear war forced the Soviet Union to produce nuclear weapons, but even at that time it was clear to us that the key direction for use of the fundamental nuclear physical discovery of the century, the fission of atomic nucleus, was toward its use as a source of power for industry and other peaceful projects.

Kurchatov worked hard to popularise the use of radioactive isotopes in every possible way.

He once called a meeting at his institute to which he invited ministers, deputy ministers and other important executives. He did not worry whether such a meeting was constitutional; he simply thought he was doing a job of national importance and that the problems associated with it had to be studied. Someone jokingly suggested that Kurchatov had convened a session of the Council of Ministers, but almost all those he had invited attended his meeting. He presented things in such a forceful way that nobody could refuse to work with him.

He reported on the importance of radioactive isotopes for the national economy. He had something for every one. He told the Minister of Health how they could help in diagnosis and treatment of diseases. Metallurgists, chemists, food and textile industry executives all heard how the use of radioactive isotopes could help in their own particular fields. During the entire session the discussion did not touch once on military matters.

The extensive application of isotopes literally produced a revolution in many fields, such as automation, control and research.

Kurchatov was a complete realist. Although he recognised that military considerations would preclude international cooperation in many fields of atomic research, he advocated extensive cooperation where it was possible. He suggested that a large accelerator be built by Soviet and US scientists jointly, and this proposal was incorporated in a memorandum I took with me in 1959 when I went to the United States to participate in talks on cooperation between the scientists of the two countries.

He knew that he was on safe ground suggesting cooperation in the fields of accelerators and high-energy physics, and believed that this would be a starting point which would lead to joint work in other spheres.

These ideas of his were included in the memorandum which was signed by representatives of the Soviet Union and the United States, and many scientists in America and in Europe are aware that Kurchatov was their initiator.

The Dubna Institute near Moscow, which largely owes its existence to Kurchatov, is a vivid example of international cooperation among physicists.

(To be concluded in the next issue)

Republic of Long Life

from the weekly NEDELYA

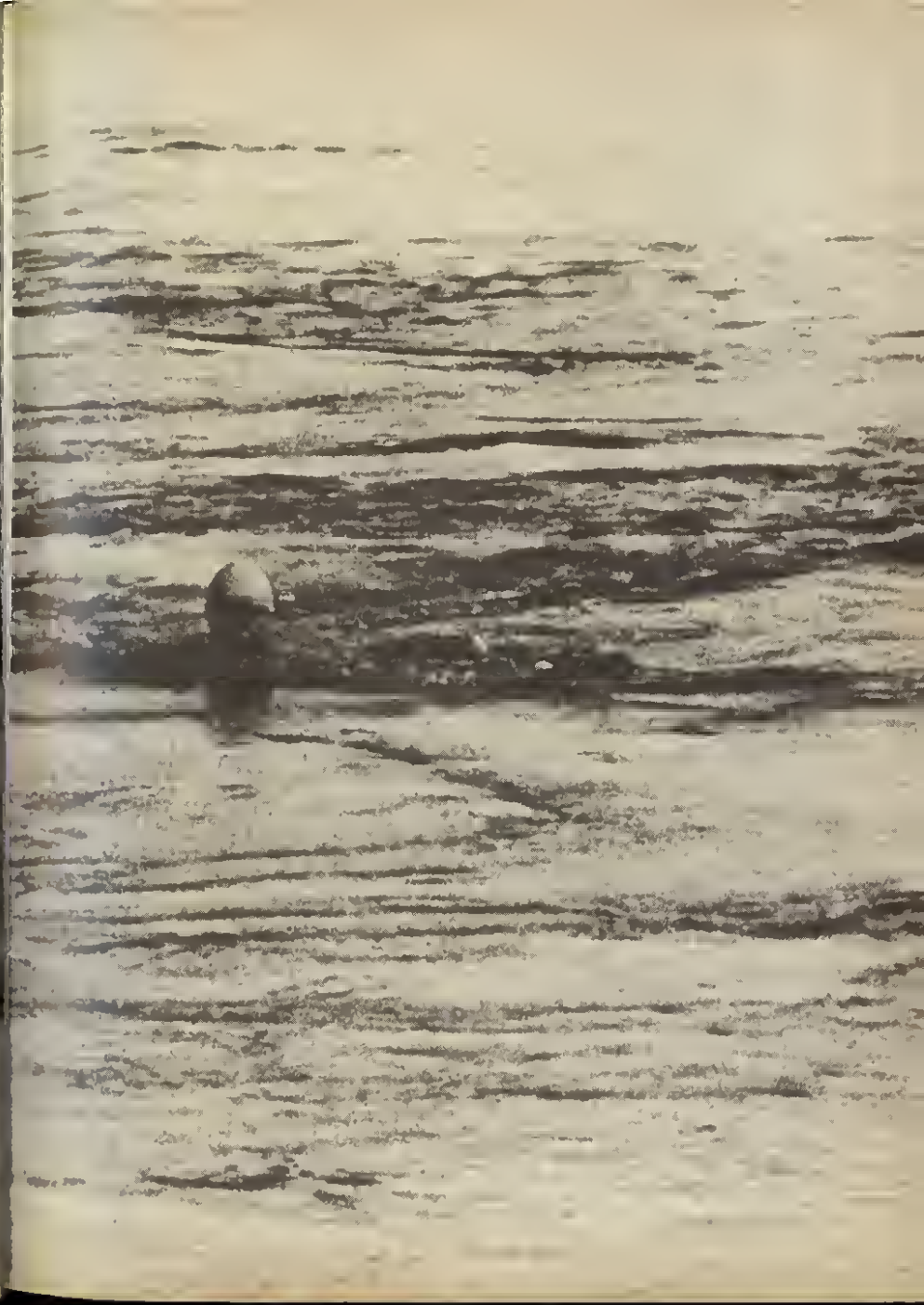
In the republic of Azerbaijan, situated on the southern borders of the Soviet Union, just over one per cent of the population is over tbe age of 80. And 84 per 100,000 have passed the century mark.

Azerbaijan has long been noted for the longevity of its inhabitants. Here in the mountain village of Barzavu lives Shirali Muslimov, who at the venerable age of 163 is still hale and hearty and boasts 187 living descendants.

Scientists are attempting to establish a connection between the longevity of the people and the mountainous relief of the republic.

Fear Stands Accused

by Gennadi PADERIN
from NEDELYA



Since the Second World War, it is estimated that 7,000,000 people in the world have lost their lives by drowning.

(From a talk with representatives of the USSR Federation of Swimming)

"... No one has the right to risk his life, except for the good of society."

Alain Bombard,
"Overboard of His Own Will"

I learned to swim when I was six years old. When I was 11, I swam the Ob from bank to bank, knowing neither fear nor fatigue. I have always been physically fit, and thought that if necessary I could swim a whole day and night without stopping. This confidence lasted until I was 30 years old.

I went to the Black Sea for a holiday, and when I saw the beach and the ocean my first thought was, "This is where I'll finally be able to swim my fill!"

I plunged in. I wanted to swim so far out that land would be completely hidden from sight. I swam on without looking back, as I was confident that I would have more than enough strength to make the return journey. There were no strict rules for swimmers then and I was soon far out of sight of the people on the beach.

I swam on for about two hours. I did not feel in the least tired and felt that I could continue indefinitely. But at that moment I decided to look around and see how far out I was. I could see no swimmers, and the people sunbathing on the beach had all blurred into one yellow line. I had never been so far out before and the thought struck me: would I be able to make it back?

Panic engulfed me. I rolled over on my back. My heart was acting strangely. There was a dull, throbbing pain in my chest. My legs and arms were rubbery and I could hardly prevent myself from crying out for help. But who was there to call to? The only living things within hearing distance were the seagulls wheeling over me. I began to thrash about frantically until I almost exhausted myself.

And then I did the right thing — I began to control myself.

My panic subsided. Paddling slowly on my back, I eventually reached the shore.

Since then (I am now 36 years old) I have not been able to get over the fear of swimming long distances.

(signed) V.S.

* * *

This letter was addressed to Dr. Eugene Konovalov. It arrived in response to an article he had written in the Novosibirsk evening paper entitled "The Psychological Barrier in Swimming". Konovalov wrote:

"Medical thinking can no longer accept the fact that many thousands of people in good health, and in the prime of life, drown every year. The reason for this sad fact is still a mystery. It is extremely important to find the key to the 'chain reaction' which leads to the tragedy, as experiments and observation indicate that no matter how badly a person may swim, he should not drown. He must be taught to overcome this peculiar 'psychological barrier' in swimming . . ."

Konovalov went on to ask people who had themselves come close to drowning to write and describe their experience, feelings, thoughts, etc. He expected a flood of letters. Instead he received a mere 14.

What brought Konovalov to his strange quest?

* * *

The story goes back to a pre-war summer when Konovalov was nine years old. His parents had taken him and his brother to a sleepy village clinging to the banks of a quiet-flowing river called the Seim. It was the first day of the holiday, the weather was hot. The water was not muddy, but dark in colour, cool and inviting.

The nine-year-old did not pause to think, to probe or investigate the hidden depths. He plunged in. When he got tired and tried to touch bottom, he found he couldn't. He began to scream and flounder. Someone answered his cries. He was saved from drowning, but from that day on he was afraid of the river.

It took an incredible effort of will-power and boyish pride to overcome his fear of water. But he did overcome it and by the end of that summer had swum across the Dnieper, where their mother had taken the boys after his bad experience.

Nevertheless, he never forgot the Seim: his panic and wild screaming had made a lasting impression on his mind and soul.

Two years after the incident on the Seim, the war broke out and the family was evacuated from Leningrad to Siberia.

The boys matured early in the hard conditions of wartime. Too young for the Army, both were determined to be physically and mentally fit in case they could be useful.

When peace came, Konovalov began to attend a sports school for children and graduated with the status of a PT instructor. He learned Sambo wrestling, cycled for long distances and later, when he was a medical student, went in for riding, shooting, weight-lifting and parachute jumping.

Through all these years, from early spring till late autumn, Konovalov kept up his swimming. In 1946, before he entered medical college, his family moved to Novosibirsk, where the majestic River Ob lapped at his feet. Tirelessly he swam from the left bank across to the right and back again.

Then he decided to swim the river during a storm. He waited for a day when a heavy north wind was blowing, and plunged in. He calmly crossed the river

without incident and drew the following conclusion: watch the waves and inhale after each wave passes. The main thing is to inhale at the right moment. The rest is just ordinary swimming.

The years took their course. Konovalov spent the prescribed time as a medical student and then devoted himself to the profession. Fate was kind to the young surgeon, and three years after graduating he was assisting at heart operations. The day finally came when he held the palpitating heart of a sick patient with his own hands. That was a wonderful, incomparable moment.

And still, somewhere deep in his subconscious, parallel to and simultaneous with his main preoccupations, lived the constant thought of the tragic situation in which water becomes man's deadly enemy.

What did observation of the heart demonstrate?

The heart and its vessels are a magnificent, self-regulating system equipped with extraordinary strength and durability, a system that is capable of adjusting itself to diverse conditions. One may assert with full conviction that if a man drowns, the heart has nothing to do with it, although the blame is often put on heart failure.

But if it is not the heart that is at fault, what is?

Perhaps the tragedies are caused by cramp?

For a whole month Konovalov kept up his long swims in the cold autumn waters of the Ob in an attempt to induce cramp. He wanted to observe the results. But the experiment failed. No cramp ever troubled him.

Nevertheless, he did not want to draw hasty conclusions. Perhaps the sole factor of staying in cold water for a lengthy period was not sufficient to bring on cramp? Perhaps a psychological factor was required? For example, no land in sight, loneliness?

He chose a cold, stormy day and swam out into the Ob Sea. The distance to be covered was three miles to an island. The water temperature was about 63 degrees Fahrenheit, the air temperature 55 degrees. There was no beach to look forward to. Neither was there a soul in the water to shout to for help. The conditions for the experiment were ideal.

It took him one hour to swim half the distance. He constantly took note of his physical and mental condition. Physically he was fine. Mentally? There were moments when a flicker of apprehension would surface. These twinges of anxiety he resolutely squashed.

When he reached his goal he turned back immediately. The wind was now behind him and the going easier, but a rain squall blew up.

After three hours and 15 minutes in the water, having covered a distance of six miles, he reached the deserted beach at the same spot he had started from.

He asked himself whether, if he had to, he could have covered the same distance again without resting, and was positive he could.

There had been no sign of cramp this time either. Musing over the matter, he wondered if perhaps the water had not been cold enough for his well-trained body.

The ground was already covered with snow. The river was edged with ice. The temperature was down to 44 degrees Fahrenheit. Konovalov continued his daily plunges, staying in the freezing water for 10 or 15 minutes. He did not experience the slightest indication of cramp.

However, cramp as a cause of drowning was still not entirely ruled out. Leaving the question in abeyance, he turned to a study of deep pools, rapids and whirlpools.

Konovalov went to the Novosibirsk Institute of Hydrodynamics. He decided to create an artificial whirlpool and observe what takes place in the vortex. He made a ball of paraffin and tar with a specific weight similar to that of the human body. Then he tossed the ball into his whirlpool. Repeating the experiment many times, he always achieved the same result. The ball refused to sink. It seemed to him that whirlpools could be excluded as a cause of drowning.

"Don't you believe it," an experienced scientist said to him. "A man is not a ball of paraffin. I know that from personal experience. I turned over in a boat once, on the Volga, and spent the better part of an hour splashing around in a whirlpool before I managed to reach the river bank."

"You're quite right," Konovalov agreed. "I shall have to try it out for myself."

And he set out for the foaming, turbulent, treacherous Yenisei river.

The experienced river man who took him out in his boat looked on with apprehension as Konovalov stripped and prepared to dive overboard. The pounding roar of the river made conversation impossible, but the man mouthed, "Are you really sure you want to carry out this experiment?"

A moment later Konovalov was in the waters of the Yenisei, freezing even in mid-July. He breast-stroked his way from the deep channel to the first whirlpool. In a second the familiar element of water became alien. Surging and swirling, the current swept up his body, rendering it weightless and uncontrollable. He tried to use his arms and legs, but was powerless in the face of the seething torrent.

With a roar it carried him over the first line of rapids and then sucked him down into the depths, flung him up and claimed him back into the vortex. Konovalov escaped once more and gasped the moisture-laden air into his lungs. He was over the first shoal. The next was 300 yards

away. Eddies swirled and danced the whole way, but not seriously enough to tax his strength.

The second rapid was worse than the first. The waters buffetted and smashed and toyed with him, but now the incredible silence of the green depths was not so terrifying and the rampaging surface was conquerable. Konovalov was in command and able to analyse his reactions. The important thing, he realised, was never to lose self-control.

As he scrambled into the motor boat, the man's angry words sounded in his ears, "Any time you want to indulge in any more fool experiments, don't come to me!"

* * *

Konovalov was not the first person to decide that fear was the basic cause of drowning. Alain Bombard, the well-known French doctor, reached the same conclusion.

But Konovalov wanted to prove it scientifically and on the basis of an analysis of case histories. Hence his appeal for letters from persons involved in near-drowning accidents and his disappointment when the response was so meagre.

In the meantime he examined the archives of forensic medical investigations which yielded important data about drownings. He looked through the thesis of Natasha Pritvits, a young Novosibirsk researcher, on funnel-formation. He did a course in zoology to get a clear understanding of the functioning of gills in fish. If the action could be copied, it might help human beings to regulate buoyancy with the aid of their lungs. He visited a number of libraries in search of material.

The ancient Greeks, in speaking of an uneducated man, were wont to say, "He can neither read nor swim!"

Konovalov is convinced that teaching people to swim is just half the problem. In the official records of drownings there are very few which are marked, "Unable to swim". In his opinion it is necessary to give people a clear idea of the real and imaginary dangers that can be met with while swimming. The greatest danger of all is fear.

Of course, there is another extreme: a flippant approach towards wide stretches of water. The normal behaviour of a swimmer should be based on knowledge of the physiological peculiarities of the human system and the ability to control one's feelings, mind and body in the most difficult of situations. Konovalov has arrived at the conclusion that only a few lessons are needed for any person and he stresses the *any* to acquire the art of buoyancy which enables even the weakest swimmer to feel at ease in a river, lake or sea at any time. The main thing is not to be afraid!

Konovalov has gathered much interesting information on his subject. Some of his conclusions are collected in an unfinished manuscript entitled *The Buoyancy of the Human Body.*

In reply to my question, "Why don't you have it published?" he gave a deep sigh and said, "The experiences of one person are not enough. If the material is to be all-embracing and comprehensive, and the reasons for all the drownings scientifically analysed, I must have a great many answers to the question, 'How did this happen to you?' There aren't any letters, so there aren't any answers . . ."

If you have ever come close to drowning, please write about your experience. The more details there are in your story, the more it will help in the endeavour to prevent the tragedies that take place each year, all over the world.

Address your letters to: Eugene Konovalov, Box 802, Novosibirsk 99, USSR.

World champs

What do the surnames Kuznetsov, Kowalewski, Smith and Schmidt have in common?

In the respective language of origin (Russian, Polish, English and German) they all mean "smith". Such names and variations, e.g. Goldsmith in English, make it the most widespread surname in the world.

In the Soviet Union Ivanov is the most common name, with Smirnov and Kuznetsov next in order. However, if in addition to Kuznetsov the names Kovalyov, Kovalchuk, Kovalenko and Koval were to be added (all derived from the Ukrainian word for smith — *koval)* then it is possible the Ivanovs would lose pride of place.

* * *

The world's tallest granite memorial stands in Dvortsovaya Square, Leningrad. It is the Alexander Column, which was designed by Montferrand and erected in 1834 to honour the victory of Czar Alexander I over Napoleon. The column weighs over 600 tons and stands more than 160 feet high.

* * *

The largest memorial museum in the world which is dedicated to a writer is the Alexander Pushkin Museum in Leningrad.

* * *

In Ashkhabad, the capital of Turkmenia, a republic in Soviet Central Asia, the weavers in a factory have come up with the largest carpet in the world. It weighs one ton and measures 2,540 square feet — big enough to spread under a jet liner.

Heart Transplants: Who Is Right?

"Incompatibility factor is no barrier in organ transplants," says Dr. Vladimir Demikhov, a leading Soviet surgeon.

Of the thousand deaths which occur throughout the world every fifteen minutes, 270 are due to cardio-vascular insufficiency, 206 are as a result of accidents, and 154 are caused by cancer. The figures 270 and 206 are appalling, the first one — deaths from heart ailments. How many of these lives could be saved by a heart transplant? Young people who are killed in accidents, in the prime of life, would be obvious donors. Where should the main efforts be directed? To overcoming the incompatibility factor, or to improving surgical skill? Some Soviet scientists, among them the noted surgeon Boris Petrovsky, pin their hopes for the future on a combination of higher surgical skill, new medical apparatus and artificial organs. Other, in contrast, including Dr. Vladimir Demikhov, prefer transplants.

by Y. BABENKO-PIVTORADNY and L. ZUEVA

from the newspaper RADIANSKA UKRAINA

A two-headed dog is sitting on a table, its tail wagging, and its four eyes indifferently viewing the people around it. The head and shoulders of a two-months-old pup seem to grow from the neck of a good old mongrel, Mukhtar. The dog, still giddy and dopey from the anaesthetic, feels better minute by minute, and laps up water greedily through both its mouths.

This extraordinary canine was shown to the conference of the Ukrainian Patho-physiologists' Society at the Institute of Physiology at Kiev, where Dr. Vladimir Demikhov had performed this unique operation the previous day.

Dr. Demikhov, who made this experiment, counts transplants in animals by the hundred now. His work attracted the attention of Professor Barnard, the first surgeon to venture to perform a heart transplant on man, and during a visit to the USSR some years ago, Professor Barnard studied the work of the Demikhov Laboratory of Organ Transplants at the Sklifosovsky First Aid Techniques Institute in Moscow.

Demikhov commenced heart graft experiments in higher warmblooded animals as early as 1940, when only a few lines had been written on the subject. The war of 1941—45 halted his work — he abandoned his laboratory for front-line hospitals. However, as an anatomical pathologist, he constantly studied the actual cause of deaths there, and this war-time experience proved to be of value to him in his later work on transplants.

The very first heart and lungs transplant operation ever performed on a dog was carried out by Demikhov in 1947. Later, in 1953, a two-headed dog, similar to the one shown at the Kiev conference appeared in his laboratory. His operations met with wide public interest and considerable scepticism.

Demikhov stated that the incompatibility factor (the rejection of an alien organ because the tissue albumen is unacceptable to the organism) was dependent solely on blood groups, and that imperfection of surgical techniques was the reason for a graft not taking, and not the fact that the organism accepted no alien tissue and produced anti-bodies.

The First World Transplants Congress, held in Paris in the summer of 1967, registered 1,200 cases of kidney grafts up to January 1, 1967. Now the kidneys used had been taken not only from identical twins whose albumen was identical, but also from random donors — naturally, with consideration for the blood group of the donors — some of whom had died before their kidney was used. By 1967 medical records showed that patients with an alien kidney had already lived for eight years. Then came the heart transplants.

"There is every reason to believe that heart transplants will be even more successful than kidney grafts," says Dr. Demikhov. "Experiments show that over the same period tissue changes in kidneys are far greater than in the heart. Yet a heart transplant is a highly sophisticated surgical operation, its end result depends largely on the techniques used and the skill of the surgeon."

Dr. Demikhov has developed his own operating techniques, and he considers that in many cases it will be necessary to transplant the lungs with the heart, because long-standing heart disorders give rise to far-reaching changes in the respiratory system. A dead person's heart must be examined thoroughly to ensure that it is a healthy one before it is used for a transplant. It is possible, for instance, for infarction to occur at the time of fatal accident, so it is essential to make a preliminary physiological examination.

"A heart transplant must be

a two-stage operation," Dr. Demikhov says, indicating another feature of his approach to a transplant. "In the first stage, the heart and lungs encased in a special box are connected to the patient's femoral vessels. This can be done easily and without aggravating the patient's condition. If these new organs function satisfactorily, then the actual transplant operation can commence. It would be a tremendous advantage to have a bank of healthy fail-safe organs for grafting."

In essence, the Demikhov idea is this: a man's brain may be irrevocably damaged in an accident, leaving him with no hope of survival, although he has no other injuries, but his body can be kept "alive" by the use of artificial respiration and blood circulating machinery. The larger vessels in this living corpse can be connected to suitably encased healthy organs removed a short time before from a person who has just died. It is no longer a fairy tale that a body may be kept "alive" long after the brain is dead.

There is the well-known case of a woman whose heart stopped beating during an operation upon the pectoral gland in a Vologda hospital. Heart massage did result in the heart starting to function again, although by the time it did, the brain had "died", and life was maintained in that body for a considerable period.

Dr. Demikhov claims that the same system can be used for rejuvenation. It boils down to linking the patient to the body of a young person who has died, but whose heart beat has been maintained artificially.

* * *

Not all scientists approve of Dr. Demikhov's theory.

Many questioners have asked whether it is justifiable to perform organ transplants on man despite the failure of such operations on animals.

"Of course it is" is Dr. Demikhov's retort. "In the first place, these operations are only resorted to in extremity, when the patient's survival prospects are nil; then, no matter how many organ transplants we perform on animals we shall never be able to study the effects of transplants on men. Remember blood transfusion . . . if the experimental work had been done on dogs alone, we should never have learnt about blood groups for there was no sign of them in dogs!"

* * *

Who is right? The majority of scientists who believe in the incompatibility factor, or Dr. Demikhov's supporters, who while recognizing that there can be incompatibility in terms of man's blood group, place the real blame on unrefined operation techniques and post-operative complications.

Time alone will provide the answer.

The Key to the Door

by Sergei VORONIN

from the magazine NEVA

Sergei Voronin was born in 1913. After finishing a technical school at the Leningrad Metal Works, he became a turner, and then worked with geological expeditions, and in journalism. In 1947 his first volume of short stories was published. He has written a full-length novel, **On His Own Soil** and a shorter one, **Unwanted Fame.**

So that was all . . . All that was left to do was to close the door and take the key from the lock. Right until that moment she had still been hoping. Perhaps he would come. Just come to see how they were getting on. After all, between them there had been something that would never be forgotten.

The room was quite empty. It was time to go. It was a gloomy room, the sun came in only in early morning, and that was in summer, no other time of year . . . Then it shone in at 5 a.m. At first it lit up the right-hand side and then the whole room was filled with golden air.

"What's the time," he glanced at his watch.

It was five.

"Must you go?"

"It doesn't really matter now . . ."

"Why not?"

"Just because . . ." He raised himself on his elbow and bent over her face. "You're like an Indian. Quite a bronze complexion."

"That's the sun." She smiled shyly and closed her eyes. He kissed her.

"Do you love me?" she asked, her eyes shut.

"Yes . . . And do you like me?"

"I love you!" It was she who said this, she who had never believed in love. She had laughed at her elder sister when she had spoken of love, hadn't believed her because she herself had married without love. Pavel had gone down on his knees and cried . . . She had felt sorry for him. They had had a son, but she still could not love him. Pavel had been killed during the first few days of the war, yet she had not cried. She liked tall, powerfully built men, and Pavel was short and skinny. She only thought about him on rare occasions. And it was true that her mind was occupied by other things. They were cold and hungry, and the guns were barking. Corpses lay in the streets . . . It was as much as she could do to get to the maternity home. There her son was born. She had no milk and he cried and screamed . . . How he survived she did not know. She strained wet bread through butter muslin, heavy, blockade bread, she boiled dried carrots thanks to her brother-in-law, who got some from the commissariat. Vera came, his wife, that same elder sister who had talked about love. She brought some cereal and a handful of granulated sugar. The baby survived, and now he was two. He would live, he would be like his father whom she had not loved . . . But she loved this man. It had been love at first sight. The blockade had not been lifted. But it was summer and she was living with Vera, Vera's children and her own little boy about 8 miles from Toksovo. She worked on a farm, and after the winter, after hunger and bitter cold, she suddenly found herself amidst sunshine, greenery and warmth. It was like a miracle.

In this tiny, forgotten village, the shells that fell in distant Leningrad were hardly heard. They lived in a biggish cottage — the two women and their three children. By that time Vera's husband had also been killed. Vera immediately aged and could not look at her sister without hostility.

"It's disgusting, the way the soldiers are always looking at you."

But what could Asya do, if life coursed vigorously through her veins, if her eyes were as deep blue as the sky and she glowed with the happiness of life.

The military patrol used to march along the street past their cottage. Usually there were two soldiers. Sometimes they called in, and would ask, simply as an excuse for their visit: "Have you noticed anything suspicious around here?" And they would hand out sugar to the children.

"That's quite unnecessary!" said Vera sternly.

Asya said nothing, and then the soldiers smiled, got out their tobacco pouches and had a smoke, taking Asya's silence to mean that she was not of the same mind as her sister.

One day he came. A tall young man, with a cape thrown over his shoulders, and wearing a jauntily tilted forage-cap.

It was evening, and the sun was slowly sinking behind the blue silhouette of the woods, and there was a peaceful hush over the earth. The children were playing outside, and Asya was sitting on the bench by the gate with Vera. They had been working hard all day weeding, and now they were resting. He was walking along with another soldier, a puny little man like Pavel, but she did not recall her husband at that moment. She looked at the tall young man with the cape, and their glances met. He greeted her.

"It's simply criminal to look the way you do," Vera said. "You should be ashamed of yourself! No one would think there was a blockade on . . ."

"There is a blockade."

"Or that your husband has been killed."

"He has."

The sun sank further and the sky was rosy. Across the pink expanse some black crows flew. They flapped their wings, and then everything became still quieter. The patrol reached the end of the village, and came back again.

"Let's go in," Vera said.

"I'll sit here a bit longer."

The patrol came abreast of them.

"Good evening!" The tall young man said once again.

Vera got up ostentatiously and went in.

"Good evening," Asya answered with a smile.

"You go on," the tall boy said to the other.

The little soldier went off.

"May I?" The tall soldier asked.

"Please sit down."

He sat down by her on the bench.

That was how they got acquainted. His name was Boris, Boris Mayevsky. He was an artist.

She had never believed in love, considering that it only existed in books and songs. And there she was, in love. He understood. She did not try to conceal anything. She realised that he liked her, she saw it in his eyes, big, lively, joyful eyes. He was easy to talk to. Whatever they talked about she found interesting. They discussed art — she was an educated girl and had trained as a teacher. She could talk about nature, which she loved. She loved everything that was dear to him. The only thing they did not talk about was the war and Pavel. But she told him about Pavel herself. It was the day she went into town for ration cards. They met on the way. Army

lorries were passing by along the road, but military vehicles could not take civilians and Asya was walking to the station.

"Let me help you," Boris said, raising his hand.

A lorry stopped, and they climbed into the cabin.

"But how . . . are you allowed to go into town?"

"They don't like it very much, but if I don't come who's going to stop a lorry for you when you come home?"

The machine rocked and bumped, flinging them against one another. It was pleasant for both of them, and each pretended not to notice when their shoulders touched.

It was pleasant on the train, it moved very very slowly, stopping to let goods and troop trains through. There were not many people in the compartment and there was no one to prevent their gazing into each other's eyes and saying anything that came into their heads.

Then they caught a tram and still went on talking and laughing, and the passengers looked at them, frowning and bewildered, for Asya and Boris seemed to come from some quite different world where there was no war, no fear, no pain, and no death.

The idea was that as soon as Asya had received her ration cards and got foodstuffs on them, they would go straight back. But instead they decided to go to Asya's home in town and drink tea.

They spent the night there. She concealed nothing from him, telling him all about Pavel. But Pavel did not cast a shadow between them. For her it was as though Pavel had never existed. For Boris he had existed, but he was simply someone Asya had not loved.

"I love you," said Boris. "I fell in love with you directly I saw you. I shall always love you wherever I am. And if I survive I'll come back, and then we'll be together, always together!"

He had a powerful voice, and powerful hands. He was broad-chested, with a big head and a strong mouth.

The room was dark. Suddenly the sun shone in. It was five in the morning.

"You're like an Indian. Quite a bronze complexion," he said.

"That's the sun . . ."

For his absence without leave Boris was sent off to a punishment battalion. "It's just as well that I have a good commanding officer — I could have been sentenced as a deserter," he wrote to Asya from the front.

In all his letters he wrote that he remembered her, he longed for her, and he loved her. She replied to him: "I love you, I long for you, I'm waiting for you!" Now, even Vera did not reproach her for her "indecent" beauty. Asya began to lose her looks — she was so afraid for him, and on top of that she was pregnant. She wrote and told

him, and he was happy about it. "We are already across the Oder", he wrote, "and before long we'll be in Berlin. Look after yourself! I'll be with you!"

She gave birth to a daughter. But there were no more letters. Had he been killed? Was he in hospital? She knew nothing. She simply suffered and waited. She waited every day, every hour, every minute. The first thing in the morning she was already waiting, when she ran in from her work she would look into the mail box but it was empty, always empty. She waited in the evenings. She would doze off still expecting a letter to arrive. It was the same every day, every hour, every minute.

The war came to an end. Everyone who had to return came home. But not Boris. Then she began to search for him. She sent out enquiries. Perhaps he was in a military hospital. Perhaps he lay somewhere crippled, afraid to remind her of his existence. But he was not in hospital. They traced him to Moscow. She was incredulous, and decided that it was someone else with the same name. When Vera went on one of her business trips to Moscow she asked her to go to the address to confirm that it was not her Boris.

Vera found the street, the block, the flat in which Boris Mayevsky lived. She rang the bell, and he opened the door himself. From the corridor came the sound of a baby crying.

"Excuse me, but does Ivanov live here?" Vera asked.

"No," Boris Mayevsky replied. He did not recognise her, but Vera recognised him.

"Excuse me," Vera said, and went away. Those were her instructions from Asya, to ring the bell, and to go away without revealing anything. "If it's really him, then you mustn't give any sign at all, he mustn't guess that I am looking for him, but of course it can't be him . . ."

"Why did he do it?" Asya kept asking herself after Vera's return. "Why? Did he fall out of love with me? Didn't he love me at all, was it because of the baby? But he was glad when he knew that I had had a daughter. He wrote to say so, but after that the letters stopped. But why, oh why?" Perhaps I seemed too superficial? Perhaps I seemed all right while the war was on, but once the war was over why should he want such a person? Of course, he decided I was too superficial . . . Probably he thought that if it hadn't been him it would have been someone else . . . Probably that was it . . . And then there had already been Vovka, the son . . .

Asya no longer expected Boris to return as her husband, as the man who had taken her in his arms and spoken of love. She began to wait for him as the father of her daughter. Why didn't he come? It wasn't so far from Moscow to Leningrad, after

all. Just one night on the train. Why didn't he come to take a look at his daughter? Every day she was prepared for such a meeting. "Suppose he suddenly turns up?" She was always dressed as though he might appear at any moment. She did not want him to find the mother of his daughter looking slovenly and untidy. No, no, she would always be clean and tidy; even though her clothes were not exactly luxurious, they would be neat. She had a hard time of it bringing up the two children. No one helped her — the pension she got for Pavel was not very big, and she relied on her own efforts. And she had reason to be proud and hold her head high! She had done it all by her own efforts! She had taken a course and was working as a dispatcher in the factory. Previously she had been an unskilled worker on the conveyor belt. She got higher wages now and things were easier. She had more time for the children — she wasn't so tired. She spent the evenings with them, and took them to concerts and theatres. No, he could turn up at any minute and she would have nothing to be ashamed of — either for herself or the children. Let him come...

Her son went off to do his army service. Her daughter entered college. The main thing had been achieved — she had brought the children up. He might still visit them, but she knew she did not want to see him. Then she had been 25, now she was nearly 50... It was all in the past. But in that case it seemed all the stranger that he did not come. Why didn't he just come out of good-heartedness? After all there had been something between them that would never be forgotten! In this very room he had spoken to her of love, had told her she looked like an Indian...

The room was quite empty. Everything had been taken out and loaded onto the van. Now she had only to remove the key from the lock and go off to the new flat, a flat in which he had never set foot and was not likely to...

"Mother, what are you doing?"

Before her stood her daughter. Strong and tall, very much like her father. She looked impatiently at her mother. She was so like the father she had never seen — and what would it have cost him to come just once, out of a sheer human desire to see his daughter? He would see how she had brought their daughter up, and he would have had no cause to be ashamed of her.

"Mother, the driver says it's time to go!"

"All right, I'm coming..."

For the last time she looked round the room: "And suppose he comes, and we've gone away? Perhaps I'll leave the key in the door. He'll go in and see that the room is empty and he will realise that we've moved. Then if he wants to it won't be all that hard to find us..."

She left the key in the door.

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A Man to Remember

by Mikhail KHAZIN

from the newspaper MOLODYOZH MOLDAVII (Youth of Moldavia)

At the beginning of the 19th century a young and reputedly talented German doctor arrived in Moscow. A Russian nobleman had invited him to come and establish a practice among the aristocracy and wealthy of the city.

Very shortly Friedrich Joseph Haas, renamed Fyodor by the Russians, showed that he was more interested in treating patients who really needed his services than in making his fame and fortune. In fact, he became a prison doctor.

Haas was indifferent to the luxuries which the rich usually regarded as necessities. Although at a certain period in his life they came to him effortlessly, he gave whatever he had to ease the lot of convicts and their families. He died a pauper, buried at the expense of the authorities.

On Dr. Haas' tombstone his motto is engraved: "Hasten to do good." He lived up to it throughout his long life.

Every Saturday morning he arrived at the deportation prison on the outskirts of Moscow. From here the long columns of prisoners, fettered hand and foot in heavy shackles, would set off on their endless road of suffering.

The good doctor, in his black waistcoat, white jabot, knee-length pantaloons, black silk stockings and shoes with shining buckles, treated the tattered, dirty, ulcerous convicts as he would his own brothers.

Haas became one of the leaders of a prison reform society which was founded in Russia at that time. His tireless campaigns bore fruit: the rods stringing together the hand-fetters of the convicts (six at a time) were abolished, and the five and a half pound shackles were replaced by three-pound ones.

Dr. Haas never hesitated to intercede on behalf of the convicts and naturally incurred the displeasure of the authorities. With his own money he purchased the freedom of serf children so they could remain with parents who were exiled.

Eventually he was branded an eccentric by the powers-that-be; a well-meaning but unbalanced foreigner.

But beneath Haas' powdered hair, plaited and tied with a black ribbon, was the mind of an advanced thinker and humanitarian. He did medical research, worked on a theory of the social nature of man and kept up a regular correspondence with the German philosopher Friedrich Schelling.

Friedrich Joseph Haas died in Moscow and is buried in the Vvedensky cemetery, formerly known as the German cemetery.

I visited his grave. It is surrounded by a metal railing and a pair of shackles is chained to the fence — a pair of the lighter, three-pound ones that Haas induced the authorities to introduce. Fading asters lay on the grave. But while I was there an elderly man with a cane in one hand and a bouquet of white chrysanthemums came limping up and carefully placed the flowers inside the iron ring of a manacle. Naturally my curiosity was aroused.

"I come here at least once a year to pay my respects," the stranger explained, "as my father did before me. My grandfather was a revolutionary who died of tuberculosis in the prison at Ilim, but Dr. Haas did his best to save him. I am not the only descendant of prisoners who were helped by Dr. Haas, who has not been forgotten. You can see by the flowers that are always fresh on his grave that we remember that good German."

He bowed his head and was silent for a few moments, then suddenly remarked: "I lost my leg in the war, fighting the Germans in the defence of Moscow."

In the lengthening shadows of the late afternoon sunlight the old man limped down the gravel path.

Nature, the Artist

by A. BENEVOLENSKY

from the magazine NAUKA I TEKHNIKA

Rodin, the French sculptor, used to say that he started by taking a block of marble and then chipped away all the unnecessary parts. This is a good method for root sculpture, the making of figures from roots.

If you have a keen eye and a lively imagination you can see almost finished works of art in the breakish shapes of roots. Here is an Elephant made from the root of an old cherry tree. Only the trunk and the tusks have been given a touch here and there, the rest was sculpted by nature. A Crouching Weasel, Battle of the Dinosaurs, and The Ugly Duckling (as Hans Andersen saw it) were there all the time for the discriminating eye to see. And here, for a change, is a stand for a table lamp.

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ARTIST IN THE SHADOWS

by Nikita GOLEIZOVSKY and Savali YAMSHCHIKOV

Alexei Gavrilovich Venetsianov, a Moscow-born painter whose early success brought him membership of the Russian Academy of Arts, and who spent the rest of his days attempting to dethrone academy canon, was one of those original talents whose work is always overshadowed by the more "fashionable" creations of their more fortunate contemporaries.

It takes time for the colossal talent of such half-forgotten artists to be discovered and praised by some truly discerning connoisseur.

Alexei Venetsianov was born in 1780, the son of a Moscow merchant who included among his wares "very fine and varied pictures done in dry paints, in gilt frames and glazed, at very moderate prices". Later the painter recalled from his boyhood that he had drawn extensively from paintings, and liked to draw his playmates.

In a quiet street not far from the Venetsianovs was the studio of the celebrated portrait painter Fyodor Rokotov, and although it is not known whether Venetsianov as a boy ever visited the studio, his career as a painter is associated with Rokotov's name. The constant conflicts between the young painter and official art are reminiscent of Rokotov's own decision to break with aristocratic St. Petersburg and resettle in Moscow.

When barely 20, Venetsianov painted several portraits of Moscow citizens, and in his advertisement in the *St. Petersburg News* on his first visit to the capital in 1802 he described himself as an artist "who copies objects from nature in pastels in three hours".

He was again in St. Petersburg in 1807 when he met the leading portrait painter Borovikovsky who befriended him and lent him a helping hand. But this "highly revered and great man", as Venetsianov called him, was not his only teacher. When not at his desk in the postal department, Venetsianov could always be found in the Hermitage, copying the old masters.

These lessons were not lost on him. For his execution of a small self-portrait (now to be seen at the Moscow Tretyakov Art Gallery) the Council of the Academy of Arts made him an associate member in 1811, and later in the same year, a full member.

This spelled success for the painter — but it was the last token of recognition he was to receive from the Academy. The worthy academicians were irked by Venetsianov's choice of subject-matter in his subsequent work. What did he mean, pray, by his "Cleaning Beets", "Peasant Women Hay-making", and "Boy Putting on Bast Shoes"? When it was the mission of art to idealize the human being, could the sweaty muzhik be said to approach the idea in any way?

That was a time of rather sharp demarcation of trends in Russian art, with the Academy throwing its weight behind classicism — a syrupy, miserable classicism shorn of all civic spirit. Classicism had fled to its ivory tower.

Defying the Academy view, Venetsianov held that authentic beauty was to be found in man's workaday life, with its joys and sorrows, and he sought this beauty in the village of Safonkovo, where he went to live.

He noted and put on canvas the grace and elegance of peasant women in the fields, and of village girls resting after harvesting work, the subtle shades and nuances of peasants toiling in the sun. His "Russian Threshing Floor", in which his talent is so strikingly revealed, became a sort of encyclopaedia of rural life. Looking at the modest creations of this Russian "painter of nature", one is reminded of Breughel, Velásquez and other great masters.

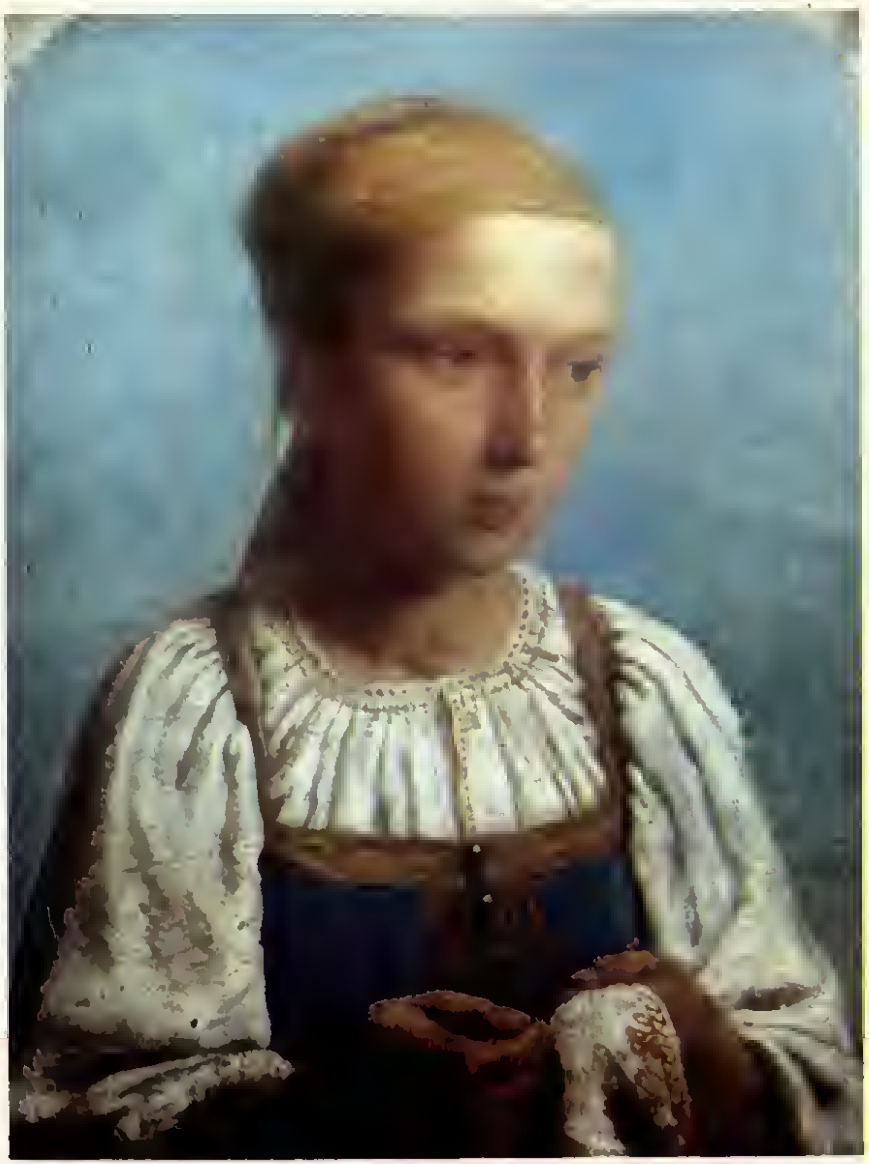
Fortune turned her back on Venetsianov. He worked from dawn to dusk, creating a whole school of gifted disciples, but it was Karl Bryullov, Bruni and other academicians, the contemporaries of this unassuming seeker after truth, who received the laurels. Everyone esteemed Venetsianov and his judgment, full of discovery and subtle observation. The young Gogol spent days talking with this wise connoisseur of life and art. Still, the "real" art was to be found in the work of "divine Karl" (Bryullov) or in Bruni's "Copper Snake". Other artists appeared, and new groups and trends gained prominence.

Venetsianov's canvases are neither jubilant nor indicting. Often the shadow cast by a vast painting on a neighboring wall may entirely conceal their subtle play of colour. Nevertheless, more and more frequently the sun's rays pick out their precious colours from the shadows of oblivion, helping people to derive aesthetic pleasure from the charm of nature, conveyed with such consummate skill by the brush of Alexei Venetsianov.

In the field. ▶

▲ Harvesting.

Girl with cornflowers. ▶



Peasant embroideress.

Zakharka. ▶

ESLI BY PARNI VSEI ZEMLI

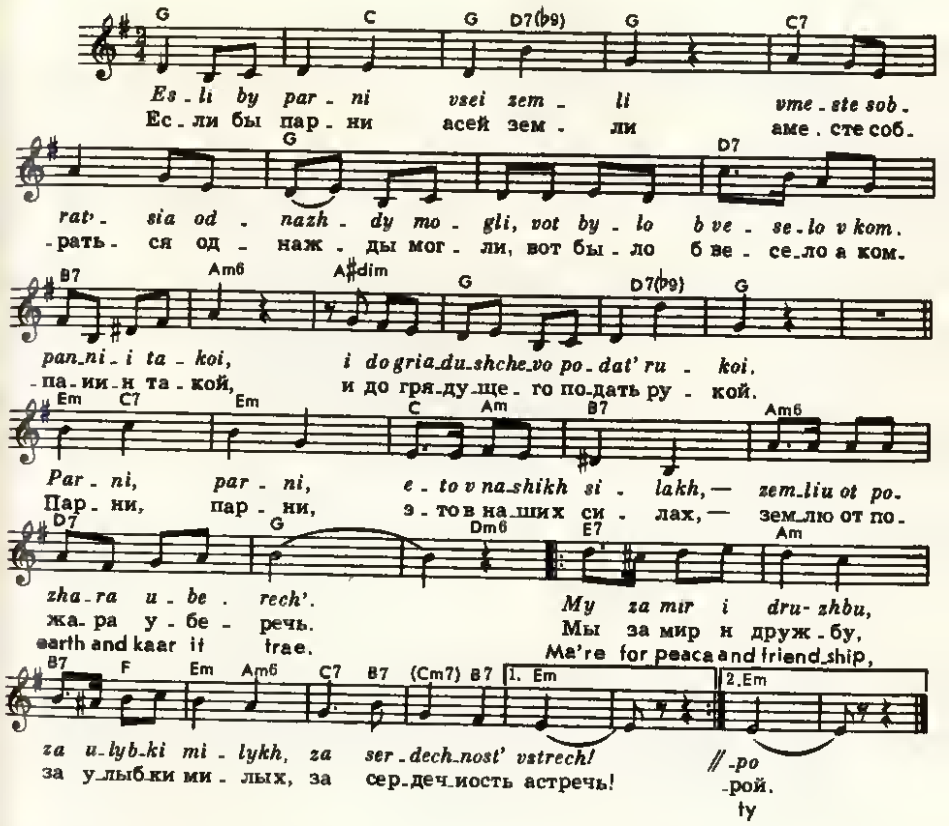
music by V. Solovyev-Sedoi **words by Y. Dolmatovsky**

Esli by parni vsei zemli
Khorom by pesniu odnu zaveli,
Vot bylo b zdorovo, vot eto byl by grom.
Davaite, parni, khorom zapoyom.

Если бы парни всей земли
Хором бы песню одну завели,
Вот было б здорово, вот это был бы гром!
Давайте, парни, хором запоём.

Esli by parni vsei zemli
Miru prisiagu svoiu prinesli.
Vot bylo b radostno togda na svete zhit'.
Davaite, parni, navsegda druzhit'.

Если бы парни всей земли
Миру присягу свою принесли.
Вот было б радостно тогда на свете жить.
Давайте, парни, навсегда дружить!

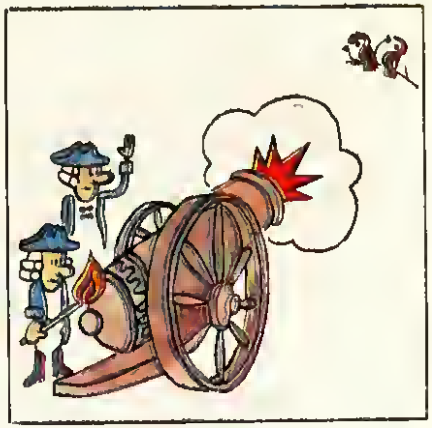


To Spare Your Blushes

Drawings by Vladimir Tilman

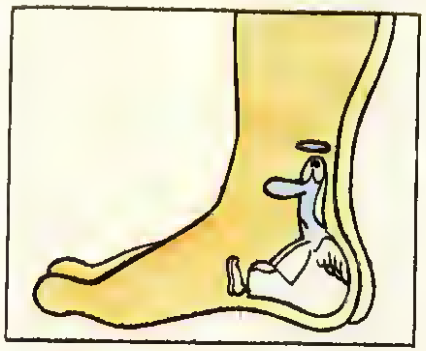
If you heard someone say: "My soul has gone into my heels!" you might simply imagine that his shoe was falling to pieces. But a Russian translating literally from his own language would simply mean: "My heart sank to my boots!" He would be just as puzzled if you translated the English version literally into Russian.

The illustrated series we are starting today may help. In each case we give an illustration of the literal meaning of a Russian saying, and then an example of how the saying is applied.



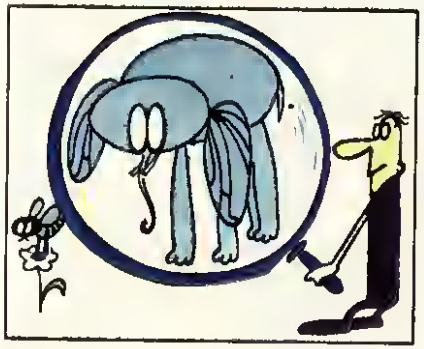
СТРЕЛЯТЬ ИЗ ПУШКИ ПО ВОРОБЬЯМ

strelyát" is púshki po vorobyám.
To fire a cannon at sparrows.
To make a great effort for a small gain.
(Cf. To use a sledge hammer to crack a nut.)



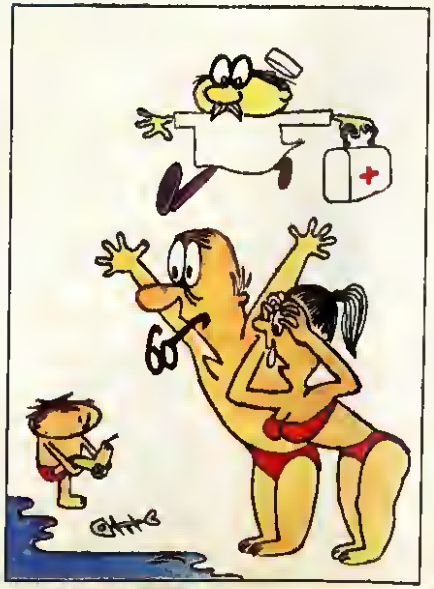
ДУША УШЛА В ПЯТКИ

dushá ushlá v pyátki
The soul has gone into the heels.
To be greatly alarmed by what is happening or expected to happen at once: to be frightened. (Cf. My heart sank to my boots.)



ДЕЛАТЬ ИЗ МУХИ СЛОНА

délat" iz múkhi sloná
To make an elephant out of a fly.
To exaggerate the importance of a small matter. (Cf. To make a mountain out of a molehill.)



Floating Dock

from the weekly NEDELYA

In order to minimise traffic hold-ups, bridges over the River Neva in Leningrad are raised only during the night to permit large ships to move up and down the river.

This, of course, delays the vessels and a novel solution to the problem has been found by the Leningrad Water Transport Institute.

A huge self-propelled floating dock is used. The ship enters the dock and the gates are closed. Then, the water from under the ship is pumped into the dock tanks. The total weight of the dock, and consequently its draught, remain the same, but the ship sinks some 16 feet and can be safely manoeuvred under the bridges.

The plan has been approved by the Ministry of Inland Water Transport of the Russian Federation.

Bridge Building with Glue

from the APN NEWSLETTER

Two engineers at the USSR Transport and Road Building Research Institute, Yuri Melnikov and Lev Zakharov, have developed a new technique to replace rivets and welds in bridge building. They use a layer of glue only half a millimetre thick.

This glue has already been used in the construction of eight bridges in the Soviet Union and the joints are stronger than those built by more conventional methods. The special glue contains synthetic resins and cement among its ingredients and it is equally effective in joining concrete bridge components in scorching heat or bitter cold.

With the new method of construction building time can be cut by two-thirds.

The Space Doll

When Andrian Nikolayev was about to take off in Vostok-5, a test engineer gave him a small rag-doll and said, "Here's something for you to play with if you get bored up there. But I want it back, mind you. I'll be there to meet you when you land!"

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